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USSR Report

HUMAN RESOURCES

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LABOR

OPERATION OF BRIGADE FORM OF LABOR ORGANIZATION DETAILED

Moscow EKONOMICHESKAYA GAZETA in Russian No 46, Nov 83 pp 11-14

[Article: "To the Aid of Propagandists and Students"; passages rendered in all capital letters printed in boldface in source]

[Text] During the current school year the study of the new course "Collective Forms of the Organization of Labor. Brigade Cost Accounting" began at many schools of communist labor and concrete economics. Educational methods materials for the study of this course were published in No 37 of EKONOMICHESKAYA GAZETA to aid propagandists and students.

Educational issue No 2 on the themes "The Brigade Is the Basic Form of Collective Labor" and "Brigade Cost Accounting" are published below.

"The Brigade Is the Basic Form of Collective Labor"

The brigade form of the organization and stimulation of labor is being used for the purposes of increasing production efficiency and improving product quality by means of the more complete utilization of working time and material resources, the great vocational training of workers, the development of their initiative and the tightening up of labor discipline.

Yu. V. Andropov called the cost accounting brigade the primary form of production management, which was found by the masses themselves.

During the 11th Five-Year Plan considerable work has been done in various sectors of the national economy on the development of the brigade form of the organization and stimulation of labor. This is clearly visible from the table.

More than 300,000 production brigades, of which 5 million workers became members, were newly created in industry during the first 2 years of the five-year plan. As a result the proportion of workers, who are employed in brigades, increased from 43 percent to 59 percent, and by the end of the five-year plan this proportion in accordance with the plans of ministries and departments should come to 67-68 percent. At present at many industrial enterprises the bulk of the workers are already united in brigades.

Number of Brigades and Coverage by the Brigade Form (in Percent)
 With Respect to the Total Number of Workers
 (at the end of 1982)

Industry.	1377006	59.0
including:		
machine building.	258946	62.3
timber and paper.	85000	64.0
ferrous metallurgy.	78000	68.0
food.	60962	64.7
construction materials.	49000	59.0
coal.	41130	57.7
meat and dairy.	36000	66.0
nonferrous metallurgy.	27000	56.0
fisheries.	14000	70.0
petroleum.	7000	59.0
Construction.	7092	75.1
Rail transport.	11787	50.2
Motor transport (for the RSFSR).	47546	84.8
Maritime transport.	3042	78.5
River transport (for the RSFSR).	5437	55.5

Economic, Organizational and Technical Preparation

The appropriate economic, organizational and technical preparation of production is of decisive importance for the changeover to the new form of the organization and stimulation of labor. Let us examine this on the basis of the example of the Kaluga Turbine Plant Association, at which 96 percent of the workers work in brigades.

A set of organizational and technical measures, which are aimed at the improvement of the specialization of the shops and sections and of each brigade and the reorganization of the system of intraplant planning, was introduced at the association. Intraplant procedural reference materials and standards were drawn up and introduced here. They regulate:

the procedure of the drafting and reporting of the plans to the brigades;

the content of these plans and the evaluation of the results of the work of the brigade, its coordination with material stimulation;

the organization of the socialist competition of the brigades along the technological chain;

the system of the engineering support of the fulfillment of the plans of the brigades and the evaluation of the quality of the labor of engineering and technical personnel in case of the brigade organization of labor.

The functional duties of the engineering and technical personnel under the conditions of the brigade organization of labor have been elaborated at the association. Public organs of the management of the brigades--councils of brigades and councils of brigade leaders of the shops and the plant--have also been

created. The basic principles, by which they are guided in case of the formation and functioning of each brigade, have been formulated. Among these principles there are:

THE OBJECT AND TECHNOLOGICAL SPECIALIZATION OF BRIGADES. A range of parts of sets, assemblies, items and operations, which represents a completed portion of the item, is attached to each brigade.

THE WORK OF THE BRIGADE ACCORDING TO A COMPREHENSIVE SCHEDULE. Each brigade works during two or three shifts in conformity with the schedule of the section, which ensures the transfer of the work without stopping the equipment, that is, while running.

THE ATTACHMENT TO THE BRIGADE OF WORK SPACE AND EQUIPMENT. Each brigade receives specific technological equipment, which corresponds to its specialization, and work space. The collective bears responsibility for their efficient use.

THE SUBORDINATION OF THE BRIGADE TO ONE IMMEDIATE MANAGER. Specific brigades are attached to each foreman. He becomes the competent manager of the labor collective, who is responsible for the results of the work and the fulfillment by the members of the brigade of the shift-day, monthly and long-term annual plans.

In case of the individual form of the organization of labor in custom and small series production the long-range intraplant planning usually ends at the level of the shop section. Only the shift-day assignments are reported to the workers.

A system, which made it possible to intensify the specialization of the shops and sections up to the collective workplace and to carry out comprehensive products list planning at all the stages of the production process--from the shop to each brigade--was elaborated and introduced at the plant. The unity of planning and specialization was ensured by taking as the planning and accounting unit the so-called complete set--a unit of the item or the parts included in it, which according to the adopted specialization are produced in a specific shop, in a certain section, in a brigade which was specified in advance.

At the level of the shop and section the complete set has the name "the technological set" and has a planned labor-output ratio in standard hours. The planning of the work of shops and sections and the accounting of the fulfillment of the plans by them are carried out in technological sets, the growth rates of the production volumes and labor productivity are determined in them.

The report of the plant on the volume of output is also drawn up on the basis of technological sets. One or several brigade sets can be included in this set subject to the number of brigades which are involved in its production.

THE ATTACHMENT OF TECHNOLOGICALLY COMPLETED WORK. In the brigade the brigade set, that is, the list of parts and operations which are attached to the brigade in the technological set, is taken as the planning and accounting unit. The taking of the brigade set as the planning and accounting unit in the

system of intraplant planning ensured the volumetric and products list planning of the brigade for a lengthy period.

The annual and monthly plans, which include the production volume in the technological labor-output ratio, the general and most important products list in brigade sets and the assignment on the increase of labor productivity and the decrease of the labor-output ratio, are reported to each brigade. The plan of the association is now coordinated with the plans of the shops and brigades.

Brigades of Creative Cooperation

The brigade form of the organization and stimulation of labor is making new increased demands on the specialists of the plant services. How the brigade organizes its work, how effectively the achievements of science and technology and advanced know-how are used and promote the cultivation among the workers of the sense of being the master, depends on their knowledge and organizing abilities.

At the Kaluga Turbine Plant the brigades of creative cooperation are the basic form of the engineering support of the collectives of brigades in the achievement of high production results. They are created from among the most skilled engineering and technical personnel of the shops (divisions) and workers on the basis of production brigades at the suggestion of the managers of the technical and economic services of the plant. The manager of such a brigade, its composition and tasks are approved by the chief engineer of the association.

At the Kaluga Turbine Plant Association brigades of creative cooperation began to be created in 1974 in all the sections of production. Depending on the tasks being worked on, they can be permanent (from 1 year and more) and temporary (for a period of not more than 1 month). The brigades work in accordance with a plan-schedule, which is submitted for approval at the general meeting of the brigades and is approved by the chief engineer.

Socialist competition is organized among the brigades of creative cooperation. The brigades, which have achieved the shortening of the period of the fulfillment of the work, have found original solutions to the posed problem and have achieved good indicators on the increase of production efficiency, are recognized as the best.

Experience in the creation of creative brigades of specialists and workers has been gained by many enterprises. Thus, 15 such brigades work at the bus plant of Lvov Oblast. In the past year and a half alone they have introduced 132 suggestions and 6 inventions with an economic impact of 209,000 rubles.

At some enterprises the reciprocal contract is the basis for creative cooperation. In some instances this is an agreement of the engineer with the worker-innovator, in others this is an agreement of the production brigade with the process engineers and designers. The goal of the contract is the improvement of the organization of production and labor and the decrease of the labor-output ratio of the products being produced.

The USSR Law on Labor Collectives granted great powers to production brigades. They are becoming an effective form of the efficient participation of workers in production management and the cultivation of a truly practical attitude toward the matter.

From the USSR Law on Labor Collectives and the Increase of Their Role in the Management of Enterprises, Institutions, Organizations

Article 18. THE BASIC POWERS OF THE COLLECTIVE OF THE PRODUCTION BRIGADE

The powers of the collective of the production brigade--the primary unit of the labor collective of the enterprise, organization--are determined in conformity with this Law by the statutes on brigades, which are approved in the manner established by the USSR Council of Ministers.

The collective of the production brigade:

directly or through the council of the brigade takes part in the settlement of questions of the manning of the brigade, the planning and organization of its work, the renumeration and stimulation of labor, the increase of the skills of workers, the education of the members of the brigade, the calling to account of violators of discipline;

gives consent to the administration for the appointment of the brigade leader, has the right to demand of the administration the relieving of him of the duties of brigade leader, if he has not justified the confidence of the collective;

elects a public organ--the council of the brigade.

The Demands on the Formation of Brigades and the Conditions of Their Work

The basic demands on the formation of brigades, the organization and remuneration of labor in them are set forth in the Model Statute on the Production Brigade, the Brigade Leader, the Council of the Brigade and the Council of Brigade Leaders, which was approved by a decree of the USSR State Committee for Labor and Social Problems and the Secretariat of the All-Union Central Council of Trade Unions. The production brigade is created in conformity with the order (instruction) of the manager of the enterprise or a subdivision. Its formation is carried out on the basis of the principle of voluntariness. The opinion of the collective is taken into account: without fail in case of the inclusion of new workers in the composition of the brigade. It is important to strive for the optimum ratio of young and experienced workers and to take into account the level of activeness of the members of the collective.

The Organizational Forms of Brigades

The organizational forms of brigades, their numerical and occupational skills composition are established on the basis of the content and complexity of the production process, the labor intensity of the operations and the requirements of the scientific organization of labor.

From the point of view of the occupational composition the brigades are divided into two types: SPECIALIZED, which are formed from workers of the same occupation, and MULTIPLE-SKILL, which consist of workers of different occupations. In those instances when the content of the operations in the given subdivision makes it possible to organize either multiple-skill or specialized brigades, priority should be given to the former. The best conditions for the attachment to the collective of the brigade of technologically completed operations, the planning and accounting of the amount of performed work, the efficient use of working time, the increase of the skills and the teaching of related occupations to the workers and the shortening of the production cycle are created in them.

Thus, in the intermediate product welding shop at the Kaluga Turbine Plant at one time there were five specialized brigades of five to seven people each, which performed the same operations. In accordance with the decision of the administration and the council of brigade leaders two multiple-skill brigades were created on their basis. They began to turn out for assembly billets in sets. The intermediate product section ceased to be a bottleneck of the plant. As a result the losses of working time in the other sections decreased by 15 percent.

Two youth multiple-skill brigades for the assembly and welding of units were created in the assembly and welding shop. Welders, fitters and adjusters of welding equipment became members of them. Specific units, which pass through practically all the stages of production and then are sent for machining, are attached to each multiple-skill brigade. Labor productivity in the section increased by 18 percent. Similar work has been performed in the majority of shops of the plant.

The brigades are also divided into SHIFT brigades and MULTISTAGE brigades, which unite the workers of several shifts. Multistage brigades are now becoming more and more widespread. They are ensuring better end results of production activity. Thus, at the Chekhov Plant of Power Machine Building in 1979 there were only 4 multiple-skill multistage brigades, while now there are already 40 of them. At the Taganrog Krasnyy Kotel'shchik Association the number of specialized shift brigades decreased from 240 to 206, while the number of multistage multiple-skill brigades increased from 30 to 72.

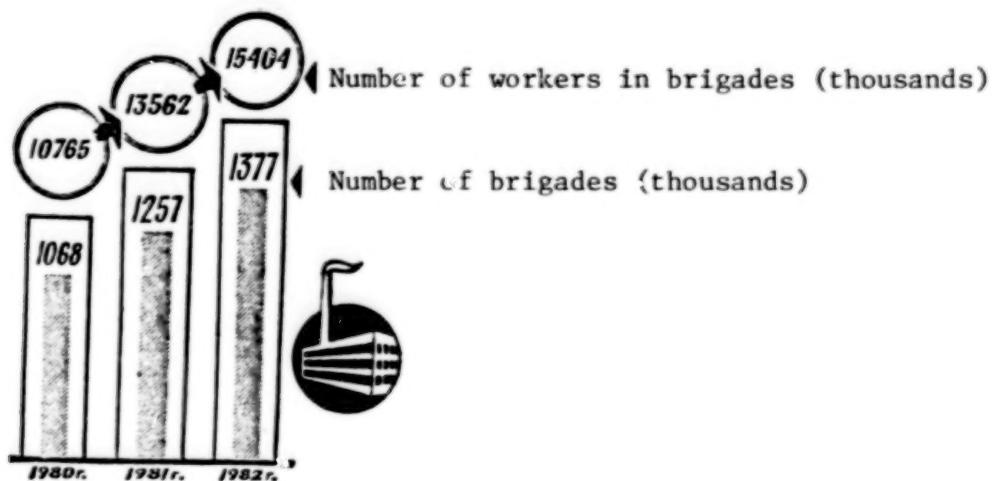
The number of basic and auxiliary workers in brigades is calculated on the basis of the planned indicators (the labor intensity of operations, the level of fulfillment of the norms, the production volume and the available working time).

Along with the total number of workers in the brigade the number of workers by occupations and categories is calculated in the indicated manner. If there is an inadequate workload of the workers, it is necessary to envisage the performance by them of jobs in related occupations or jobs which require greater skill. The training of the members of the brigade for the performance of these jobs should accordingly be carried out.

At present in industry up to five people work in nearly a third of the brigades. But, as experience shows, the advantages of the collective organization of

labor are not completely realized in them. Therefore, the question of the optimum composition of the brigade is very urgent. It depends on many factors, and first of all on the processing method and the labor intensity of the performance of the operations. For example, in the custom production of machine building the optimum number comes to 16-25 people.

Number of Industrial Workers Engaged Directly in Production, Who Are Covered by the Brigade Form of the Organization and Stimulation of Labor



The system of the Volga Motor Vehicle Plant is now being introduced as an experiment at the enterprises of the number of sectors of industry. Here, as is known, a large portion of the brigades are multiple-skill brigades, which perform the total amount of work. From 30 to 100 people work in such brigades.

At a number of enterprises they are extending the brigade form of the organization and stimulation of labor to the sections. In this case the senior foreman and the chief of the section manage the collective. Along with basic workers the auxiliary workers and specialists are also members of such a collective.

The Role of the Brigade Leader

But, as a rule, the brigade leader--a leading skilled worker, who has organizing abilities and enjoys prestige among the members of the brigade--heads the brigade. The brigade leader is appointed by an order (instruction) of the manager of the enterprise (shop) in accordance with the representation of the foreman and with the consent of the brigade.

As the manager of the primary labor collective, he should integrally combine in himself adherence to party principles with thorough competence, discipline, with initiative and a creative approach to work.

The brigade leader should professionally know and perform his job; be able to organize the production activity of the collective of the brigade with the minimum material and labor expenditures; make sound decisions on the

organization of the work of the brigade; explain the tasks facing the collective and be responsible for their accomplishment; be principled, self-controlled, modest; treat people thoughtfully and attentively when solving personal problems.

Success in work in many ways depends on the ability of the brigade leader to place the workers properly. Here one must take into account not only their practical, but also personal qualities and the relations with each other. It is important to cultivate and maintain in the collective of the brigade conscious discipline, without which it is impossible to work normally.

The mood and labor efficiency in many ways are determined by the authority of the brigade leader. It is possible to name many brigade leaders who enjoy well-earned respect in their collectives. Among them are Muscovites--V. A. Kapustin, the manager of a multiple-skill brigade of House Building Combine No 1; V. A. Lunev, the leader of a brigade of machine operators of the Kompressor Plant; I. S. Antipov, the leader of a brigade of electricians of Workshop No 54 of the Mosremelektrobytpridor Plant; L. N. Odinokova, a brigade leader of the Zarya Production Association.

Programs of the training and the increase of the skills of brigade leaders have been worked out in many ministries. The basic directions of the elaboration of programs of courses of brigade leaders are given in the model statute on the vocational training of workers, which was approved by the USSR State Committee for Labor and Social Problems, the USSR State Committee for Vocational and Technical Education and the All-Union Central Council of Trade Unions. As a rule, these courses are organized directly at associations and enterprises. Several ministries (the Ministry of the Shipbuilding Industry, the Ministry of Power Machine Building) have set up sectorial schools of brigade leaders.

At the Kaluga Turbine Plant more than 700 workers have been included in a special brigade leader reserve. They study a 96-hour course on production management. The average age of the brigade leaders at the plant is 34, more than 50 percent have a complete secondary education; 53 percent of the brigade leaders are of the fifth and sixth categories.

The Functions of the Foreman

In case of the changeover to the brigade form of the organization of labor at any enterprises the question of the allocation of rights, duties and responsibility among foremen and brigade leaders becomes urgent.

The brigade leader takes upon himself the instruction of the performers and the distribution of work in the brigades. However, it would be incorrect to reduce the role of the foreman as the immediate manager of production. It is important, therefore, to establish a procedure, in case of which their basic function would consist in the management of the brigades and the increase of the technical and organizational level of their work. It is advisable for the foreman to supervise the work of not less than two to three brigades.

At the Kaluga Turbine Plant with the introduction of the brigade form of the organization of labor the intrashop structure of management and the role of the foreman changed qualitatively. The management of production in the section is now carried out under the two-unit system "the foreman--the senior foreman." The foreman now moves up directly to the chief of the shop. On the average from 2 to 5 brigades, in which from 24 to 32 workers are united, fall to him.

The reorganization of the system of planning enabled the foreman to have his own precise plan for the year and each month. It consists of the sum of the plans of the brigades attached to him. The foreman bears full responsibility for the fulfillment of this plan and reports to the brigade the posed tasks, which are discussed at the meetings of the collective.

At the section planning meetings an analysis of the production activity of the brigades is given and the mistakes and miscalculations are discussed. Particular attention is being devoted to the elimination of bottlenecks, the cases of the violation of labor discipline are being analyzed, measures on not allowing them are being planned. The foreman under the new conditions has obtained the opportunity to devote more time to planning and the preparation of production.

Participation in the elaboration and introduction of measures on the acceleration of scientific and technical progress and the organization of socialist competition along the technological chain with related brigades of one's own shop and other shops and the performance of educational work in the collectives of brigades have now become the main components in the work of the foreman.

At the association the functions of the foreman and brigade leader have been defined more clearly. The management of the brigade is also included in the duty of the foreman, but within the brigade only the brigade leader settles all questions. Thus, the foreman does not replace the brigade leader, but at the same time bears responsibility for the brigade. This creates the conditions for the joint fruitful work of the foreman and the brigade leader on the increase of production efficiency and work quality in the primary labor collectives.

The administration approaches the selection of foremen very strictly, assigns young specialists to this job and organizes courses of the increase of skills. The recertification of foremen is carried out annually. Comfortable uniform clothing, in which he is obligated to turn up at the workplace, is issued to each of them.

As practical experience shows, it is advisable to draw up for each brigade a consolidated document--the passport of the brigade, in which all the technical, organizational and social characteristics of the brigade are reflected.

The data contained in the passport of the brigade are used for the improvement of the organization of labor in the collective and the increase of the efficiency of its work.

"Brigade Cost Accounting Is a Method of Efficient Management"

The Basic Requirements of Brigade Cost Accounting

Brigade cost accounting is the primary form of production management, which is aimed at the increase of the economic independence, interest and responsibility of brigades, engineering and technical personnel and employees in the assurance of high end results of labor and the careful and efficient use of resources and in the increase on this basis of production efficiency.

Plan indicators on the production volume in the products list and the wage fund, as well as the assignment on the decrease of the labor-output ratio (the increase of labor productivity), product quality (the grade, the output of acceptable products), the consumption of raw materials, materials, fuel, power and other material resources, that is, the indicators, the fulfillment of which depends directly on the activity of the collective itself, are established for each cost accounting brigade.

The calculation of the plan indicators for brigades is made on the basis of the approved standards and the plan of the output of products, which has been established for the shop, the assignments on the increase of labor productivity, with allowance made for the equipment attached to the brigade. The inter-sectorial and sectorial standards, which have been approved in accordance with established procedure, as well as the local standards, which have been elaborated at the enterprises, are used for the calculation.

The rates of consumption of raw materials, materials, semifinished products, components, fuel, thermal energy and electric power, tools, equipment accessories and other material resources per unit of output are reported to the brigade. Rates are established only for those types of resources, the consumption of which depends directly on the given brigade, is backed by reliable accounting and has a significant influence on the product cost.

The collective of the brigade is materially interested in the best results of its economic activity. This interest is achieved by assignments to the brigade of a portion of the assets of the obtained saving of material resources. In the evaluation of the cost accounting activity of the brigade the expenditures on the production of output (the performance of work) are compared with the plan assignments and standards. In case of such a method of evaluation the saving or excessive consumption is established with respect to those items, in accordance with which the cost accounting assignments are established and the record of the actual expenditures is kept.

Norms and Standards

The improvement of the system of standards of labor, material and power expenditures, planning and accounting is of great importance for the further development of brigade cost accounting. The planning of the amount of work, labor productivity and the saving of material resources, the calculation of production capacities and the evaluation of the end results of labor and the personal contribution of each worker are carried out in cost accounting brigades by means of norms.

At times they attempt to justify the inadequate development of brigade cost accounting by the fact that at the works it is impossible to organize the recording of all the types of expenditures, which are attributable to the product (work), which is made by a specific brigade. It is impossible to agree with such a point of view. First of all the cost accounting relations are established with respect to those indicators, on the value of which the brigade can have a substantial influence. Otherwise the obtained impact cannot justify the expenditures on the organization of planning and accounting. One should also take into account that at times the saving of one type of material resources or another either is altogether impossible or leads to a decrease of product quality.

Interesting experience in the organization of accounting in cost accounting brigades has been gained at many enterprises. Thus, at the Seversk Pipe Plant imeni Merkuiov a record of the following indicators is kept in the brigades: the fulfillment of the production plan; the consumption of basic materials, replaceable equipment, fuel, electric power; the output of defective products; the product grade.

The record keeping is carried out in the shift reports or in the passports of the machining of metal. Thus, in the sheet rolling shop every brigade has a passport of the machining of metal. In it the information on the weight of the metal after the corresponding technological operations is given, the reasons for defective output during each shift are indicated. Thus, the brigade leader always has the necessary information on the consumption of metal and the quality of the rolled products and can take the necessary steps for the elimination of the shortcomings in work. The consumption of fuel and electric power is recorded by meters.

The introduction of brigade cost accounting required the implementation of specific organizational and technical measures at the plant. Thus, in the pipe rolling shop backup scale rules were installed for the measurement of the lengths of pipe in the section of flame cutting, the organization of the recording of defective output was improved, the recording of the violations of technology by pipe rolling units was organized.

Brigade cost accounting is becoming more and more widespread at State Bearing Plant No 3. At present more than half of the multistage brigades here are cost accounting brigades.

Thus, the following indicators were established for the brigade of N. A. Bogatov: the volume of output of finished products in the set products list (for the quarter and month); the increase of the production of output per worker; the wage fund; the average wage; the assignment on the turning over of products to the technical control division upon first presentation and the decrease of defective output; the assignment on the saving of metal and tools.

The collective of the brigade bears responsibility for the fulfillment of the plan indicators with respect to all items. The detected defects of items, which occurred through the fault of members of the brigade, are corrected by the brigade or at the expense of the person responsible for the flaw. A record of the losses of working time by each member of the collective is kept in the brigade.

The recording of the output with respect to the final operation is carried out for the brigade as a whole. For the fulfillment of the assignment on the saving of metal and tools 5 percent of the bonus is credited to the brigade, while for the fulfillment of the assignment on the volume of output--20 percent.

The Experience of the Work of Contracting Collectives

The collective contract is a further development of brigade cost accounting. Its essence consists in the fact that the collective in conformity with the contract is charged to perform a specific finished amount of work (production of finished products, construction of a specific project). Here, as a rule, long-term standards are established, subject to which the amount of the wage is determined. Thus, the collective is guaranteed the corresponding wage in case of the fulfillment of the planned amount of work in the set time regardless of with how many people it was fulfilled.

The brigade under the conditions of the collective contract takes part in the drawing up of the plan assignments, the placement of personnel, the elaboration of measures on the efficient use of the available equipment and working time and on the economical consumption of raw materials and materials. The overall interest in the quality of the norm setting of labor and in the use of effective forms of material stimulation increases.

In these collectives the opportunity appears to create party, trade union and Komsomol groups, to increase their influence on the production and social life of the labor collective and to improve educational work.

The Contract in Construction

The new method of the organization of labor was used for the first time in 1970 by the brigade of N. A. Zlobin, which concluded an agreement (contract) with its construction administration for the building of an apartment house up to its placement into operation. The recording of the expenditures on production was specified by items of expenditures, which were envisaged in the estimated cost of the work (with the exclusion from it of the expenditures which do not depend on the brigade).

The brigade bears material liability for the failure to observe the terms of the agreement and the violation of the established dates of the fulfillment of the work, the amount of the bonus payments is reduced.

The cases of the violation by the client of the obligations assumed in accordance with the contract are reviewed by a superior organization, which determines the liability of the client for these violations and establishes the measures of influence on him in conformity with prevailing legislation.

In 10 years of work on the contract the collective of the brigade of N. A. Zlobin built and turned over for operation with good quality 27 apartment houses with an actual living space of 202,000 m², a school for 1,000 students and a kindergarten for 250. The total decrease of the construction period for these projects came to 1,744 days (or nearly 5 years), an above-plan profit

in the amount of 350,000 rubles was obtained, while the output per worker increased from 13,000 rubles to 42,000 rubles.

At present more than 70,000 collectives, or 35 percent of all the brigades in construction, are working in accordance with the brigade contract method. The analysis of the work of cost accounting brigades in accordance with the method of N. A. Zlobin showed that they shorten the construction periods of projects by 17-20 percent and save 3-4 percent of the material and technical resources.

The highest stage of the brigade contract is the comprehensive flow line brigade contract. It is based on the flow line method of construction and envisages the planned and constant workload of the cost accounting brigades of the different links of the construction conveyor "plant--making up of sets--transportation--construction project" in accordance with coordinated schedules, which have been drawn up with allowance made for the placement into operation of production capacities and projects of construction on the set dates.

The Orel construction workers used this method for the first time. The comprehensive contract made it possible to increase the smoothness of the production of structural components and the placement of housing into operation and to decrease the labor expenditures significantly as compare with the conventional contract.

Interesting experience in the use of the comprehensive flow line brigade contract in housing construction has been gained by the Tallinn and Chuvas' House Building Combines of the USSR Ministry of Construction, the Kapchagay House Building Combine of the USSR Ministry of Rural Construction and House Building Combine No 3 of the Main Administration of Housing and Civil Construction of the Moscow City Soviet Executive Committee.

In industrial construction the comprehensive brigade contract was used successfully in combination with the unit-by-unit method of designing and the organization of the performance of work when constructing the sheet iron shop of the Karaganda Metallurgical Combine by the Kazmetallurgstroy Trust of the USSR Ministry of Construction of Heavy Industry Enterprises and by the subcontracting trusts of the USSR Ministry of Installation and Special Construction Work.

As a result of the use of the advanced method of the organization of labor the rate of construction and installation work increased significantly. In all 16,700 tons of technological equipment were installed in the shortest possible time, the six-high rolling mill was installed in 153 days with a norm of 207 days. The output in such brigades was on the average 18-20 percent higher than in conventional brigades. The losses of working time were reduced by one-half, labor discipline was tightened up.

Great reserves of the further development of the contract method are incorporated in the consolidation of brigades. Collectives numbering 40-60 people can perform an amount of work of up to 1 million rubles and more a year. The creation of such collectives in the USSR Ministry of Construction of Heavy Industry Enterprises, the USSR Ministry of Industrial Construction, the USSR Ministry of Power and Electrification and the USSR Ministry of Construction of Petroleum and Gas Industry Enterprises showed that the consolidated brigade is

capable by itself of performing work at the project during two to three shifts, of shifting people and equipment easily and of using means of small-scale mechanization and tools better and more efficiently. Therefore, the consolidation of contracting brigades and the creation of integrated technological flows are a further direction of the improvement of the brigade contract at construction jobs.

Number of Brigades and Number of Industrial Workers Engaged Directly in Production, Who Are Covered by the Brigade Form of the Organization and Stimulation of Labor

	Number of brigades, thousands			Number of workers in brigades, thousands		
	1980*	1981	1982	1980*	1981	1982
Multiple-skill.	430	538	604	5168	7064	8221
of them multistage.	67	95	113	1194	1749	2097
Specialized	638	719	773	5597	6498	7183
Of the total number of brigades, brigades with payment according to a single order (standardized assignment) . . .	551	919	1062	5191	9813	11876

* On 1 August.

The goal of the creation of consolidated primary production collectives is to form their composition with respect to size and occupations so that they would be capable of accomplishing the ultimate goals--to build and put into operation specific projects.

The brigade of I. V. Smirnov of the Sibomplektmontazh Association is an example of the consolidated multiple-skill brigade. It has 140 people and is headed by a brigade leader-construction superintendent. Within it there are two foremen-link leaders, one superintendent for economics and a timekeeper-accountant.

The brigade is working on a contract and is successfully building housing, cultural and personal service facilities. The entire set of operations from the ground to the decorating is performed on the projects. The wage fund is determined by representative projects and is calculated as a percent of the estimated cost of the construction and installation work at the projects put into operation. In the process of construction the wage is advanced, while the final settlement, including the premium bonuses and job contract increments, is made after turning over the projects to the state acceptance commission.

The brigade of I. V. Smirnov in 1982 put into operation projects with a total value of 4.2 million rubles, including those fulfilled on its own--3.5 million rubles. Labor productivity in the brigade came to 22,000 rubles as against 6,000-7,000 rubles in other brigades.

The brigade contract method has become prevalent not only in construction. It is finding more and more extensive use in industry (in the coal, petroleum and gas, paper, timber and wood processing industries), in motor transport and other sectors.

Thus, AT SHAFT SINKING ADMINISTRATION NO 9 OF THE SVERDLOVSKSHAKHTOSTROY TRUST the brigade of drift miners headed by A. Genko was the first to change over to the brigade contract. In the agreement on the contract the brigade bound itself to perform all the work in accordance with the schedule, in precise conformity with the technical specifications and within the limits of its planned accounting cost, not to allow deviations from the plan, to strictly observe the rules of operation of mining equipment, to tighten up labor and technological discipline and to increase the standards of production. The brigade assumed collective responsibility for the preservation of machines and devices.

The management of the administration, in turn, guaranteed the brigade the timely organizational and technical preparation of the work, the supply of ancillary shops with resources and services, the exercise of control over the observance of operations in the stope, the keeping of an accurate record of the cost of operations by types of expenditures and the promotion of the introduction of the scientific organization of labor and advanced technology.

A procedure of the remuneration of labor and the payment of bonuses was established. In case of the observance of the terms of the agreement the management bound itself to pay the brigade wages and bonuses in accordance with the general statute. The additional reward in case a saving from the decrease of the estimated cost were obtained, was specified as follows: with an evaluation of the work as "excellent"--40 percent, as "good"--30 percent and as "satisfactory"--10 percent of the saved assets. Of the total amount of the bonus 85 percent is allotted to the brigade, while the remainder is allotted to the engineering and technical personnel who actively assisted the introduction of the brigade contract.

The brigade contract did not require the reorganization of the technological process. But the responsibility and interest of each person in the end results of labor increased, all the units began to operate more efficiently--the engineering support and the work of transportation and the drift miners improved.

The introduction of the brigade contract made it possible to decrease the expenditures of labor by 750 man-shifts as against the norm. The expenditures on the operation of machines and devices and other mining equipment turned out to be less than planned. Hundreds of thousands of kilowatt-hours of electric power, many spare parts, tools and cutting tools were saved. The additional saving from the shortening of the drifting time came to 41,160 rubles. Of this amount 30 percent was used, as was stipulated by the agreement, for the payment of additional bonuses.

AT THE AZIZBEKOVNEFT' PERTROLEUM AND GAS PRODUCTION ADMINISTRATION the brigade contract is being used in maintenance operations. A special system of estimated planning indicators has been elaborated for the well maintenance brigades. The number of wells serviced by one brigade (the service zone) is the basic indicator of the new system.

The system includes the standards of the daily shutdown of wells for maintenance and while awaiting maintenance, the indicators of the fulfillment of the monthly schedules of geological engineering measures and preventive

maintenance, the overhaul life of wells, as well as the underproduction of petroleum for reasons which depend on the maintenance workers. The new approach to the evaluation of the labor of the maintenance workers made it incumbent to perform work on the improvement of their organization of the labor of the brigades and their technical supply.

The brigades were changed over to the time rate plus bonus wage system, the standard number of wells being serviced was determined for each of them. If the brigade increases the service area, for this it received an additional payment of up to 30 percent of the rate. Moreover, the workers receive bonuses in the amount of 15 percent of the rate for the observance of the standard of the shutdown of wells. A 2-percent additional payment is credited for each percent of the decrease of this standard, in case of its nonfulfillment it is reduced by the same amount.

The work in accordance with the new method enabled the collectives of brigades to achieve good economic indicators. Thus, for the fourth field the average daily production of petroleum increased by 15 tons, the overhaul life of the wells increased from 37.1 to 44.3 days. The number of workers in the brigades decreased, the maintenance workers enlarged the service area.

AT THE UKRGAZPROM ASSOCIATION the use of cost accounting by the brigade headed by I. I. Rybchich when constructing Well 82 of the Raspashnovskiy deposit made it possible to use as much as possible the reserves for the economical consumption of material and technical resources, to decrease the cost of drilling of the well, to increase labor productivity, to shorten the time of construction of the drilling rigs and to improve the quality of the work being performed.

The interest in the end results of labor and great skill enabled the collective of the brigade to achieve high technical and economic indicators. Thus, the standard drilling time of Well 82 with a depth of 4,406 m was shortened by 100 days. The actual overall drilling rate was 14 percent greater than the standard rate. The productive time as a result of the skillful organization of labor in the brigade and the use of the contract came to 95.5 percent. The actual cost of construction of the well as against the estimated cost was reduced by 177,300 rubles, of them the saving, which depends on the work of the drilling brigade, was reduced by 23,300 rubles.

A portion of the indicated saving in accordance with the adopted statute was allocated for the payment of bonuses to the brigade, as well as to the engineering and technical personnel who actively contributed to the introduction of the brigade contract.

The Contract in Motor Transport

The brigade contract in motor transport, as practical experience has shown, is used most extensively in case of the mass transportation of construction, industrial and food cargo.

The agreement, which is the legal basis of the brigade contract, stipulates the specific obligations of the parties.

The observance of the standard times of loading and unloading, which ensure the punctual fulfillment of the coordinated schedule of the movement of the vehicles of the brigade, which is working in accordance with the agreement, should be the main contractual obligation of the management of the enterprises and organizations (the consignors and consignees).

The contract agreement specifies the responsibility of the parties for the observance of the contractual obligations and the sanctions for their violation, as well as the procedure of settlements between the parties which signed the agreement.

For the purposes of increasing the material interest in decreasing the expenditures on transportation service the contracting brigades of drivers, which are employed in the transportation of construction cargo, are paid bonuses for the saving of operating expenses (the decrease of the estimated production cost of transportation).

The difference between the planned (estimated) and actual production cost of the performed amount of transportation constitutes the amount of the saving of operating expenditures.

**Example of the Calculation of the Planned and Actual Operating Costs
(Estimated Production Cost) for the Contracting Brigade in Motor Transport
(for the quarter)**

Item numbers	Name of items of costs	Cost in rubles		Result rubles (+,-)
		According to plan	Actual	
1.	Basic and additional wage and contributions for social insurance of drivers.	211,970	209,070	-2,900
2.	Fuel.	105,985	103,385	-2,600
3.	Lubricants and other operating materials	6,765	6,565	-200
4.	Wear and repair of tires and tubes	45,100	43,300	-1,800
5.	Operating repair and maintenance of vehicles.	81,180	82,680	+1,500
Total costs		451,000	445,000	--
Amount of saving.		--	--	6,000

The saving of operating expenditures should be achieved without detriment to the rules of the operation of vehicles.

The amount of the bonus to the brigade for the decrease of the estimated production cost of transportation is established within the limits of up to 40 percent of the amount of the saving achieved by the brigade and is paid in excess of the established maximum amounts of the bonuses and in excess of the wage fund regardless of the overall results of the economic activity of the motor transport enterprises, but within the limits of the total saving of operating costs, which was achieved by the motor transport enterprise.

The bonus is distributed among the drivers with allowance made for the labor contribution of each of them to the results of the work of the brigade, but cannot exceed 0.75 of his monthly wage rate.

Hero of Socialist Labor Ye. Fedyunin--a driver of Motor Transport Combine No 29 of the Main Administration of Motor Transport of the Moscow City Soviet Executive Committee--was the initiator of the introduction of the contract in motor transport. In conformity with the agreement, which was concluded between the motor transport combine and the Plant of Reinforced Concrete Items No 4, the brigade of Ye. Fedyunin assumed collective responsibility for the transportation of components from the plant and their delivery to construction projects.

For the crediting of the wage at the motor transport combine a personal account for the recording of the volume of transportation, the worked machine-days and machine-hours, was introduced for each member of the brigade.

The bonus fund of the brigade, which is spent for the stimulation of the drivers and cultural and personal needs, is created by means of deductions from the above-standard profit. It is formed at the rate of 1.5 percent for the fulfillment of the plan on the profit and 0.03 percent for each percent of its exceeding. In 1982 alone the brigade fund came to 2,630 rubles.

The changeover to the brigade contract enabled the brigade of Ye. Fedyunin to achieve high results. The labor productivity of the brigade increased by 12.9 percent, 15,500 l of diesel fuel were saved, the plan on the profit was fulfilled by 119.7 percent. The utilization ratio of vehicles in the brigade of Fedyunin is 33 percent higher than for the Mosstroytrans Administration of the Main Administration of Motor Transport of the Moscow City Soviet Executive Committee.

The brigade of Yu. Fedyunin concluded a new contract agreement for 1983.

The Contract Agreement for the Transportation of Reinforced Concrete Components (Panels) in 1983 by the Brigade of Drivers of Motor Transport Combine No 29 From the Plant of Reinforced Concrete Items No 4

The brigade of panel-carrier drivers of Motor Column No 3 of Motor Transport Combine No 29 of the Mosstroytrans Administration numbering 18 people, which is hereinafter called the "Contractor," in the person of brigade leader Comrade Ye. P. Fedyunin, Motor Transport Combine No 29 of the Mosstroytrans Administration, which is hereinafter called the "Motor Transport Combine," in the person of Comrade S. P. Larin, chief of the motor transport combine, and the Plant of Reinforced Concrete Items No 4, which is hereinafter called the "Client," in the person of director Comrade A. P. Ovsyannikov on the basis of the agreement of the "Motor Transport Combine" with the "Client" have concluded the following agreement.

The Subject of the Agreement

The "Contractor" accepts the contract, while the "Client" presents for centralized transportation reinforced concrete panels in the full amount--in 1983 115,000 tons with the following breakdown by quarters:

I	II	III	IV
28,300	29,300	28,800	28,600

The Duties of the Parties

The "Contractor" is obliged:

- to haul the reinforced concrete panels in strict conformity with the orders of the "Client," the hourly schedules and assignments in the waybills;
- to observe all the requirements of labor safety techniques and traffic rules;
- to transport all the panels and to deliver them to construction projects with the complete preservation of their quality;
- to keep track of the technical condition of its vehicles;
- to determine the necessary number of panel carriers, which are required for the transportation of panels during the day, including by shifts, and to report to the maintenance division of the motor transport combine the needed number of panel carriers for the forthcoming transportation.

The "Motor Transport Combine" is obliged:

- to be responsible to the "Client" with respect to all the obligations of the "Contractor";
- no later than 5 days before the start of the planned period of transportation to report to the brigade the annual, quarterly, monthly and daily assignments;
- to make a check of the practicability of the job orders and schedules, which are presented by the "Client";
- to plan the daily assignments for each member of the brigade in the waybills;
- in all instances of above-standard layovers of panel-carrying trucks for loading and unloading operations to take steps immediately on their elimination and at the same time to report such cases to the "Client";
- to provide the brigade with technically fit vehicles and their putting on line in conformity with the schedule of departure of vehicles;
- to provide the vehicles of the "Contractor" with the necessary amount of fuel and lubricants, spare parts, tires and tubes in accordance with the existing norms;
- to ensure the recording of the indicators of the work of the brigade in conformity with the Statute on Cost Accounting and to inform the brigade of them.

The "Client" is obliged:

to present for transportation and to ensure the shipping of panels in the full amount in conformity with the concluded agreement, orders, job orders and hourly schedules;

to ship the panels in strict conformity with the specifications and the observance of labor safety techniques;

not to permit above-standard layovers for loading and unloading, as well as layovers in case of the drawing up of documents;

before the start of construction of a new project to verify the readiness of the site for the receipt of products;

to maintain the drives and loading platforms in serviceable condition.

The Responsibility of the Parties

The responsibility of the "Contractor":

for the nonfulfillment of the daily assignment through the fault of the "Contractor" the latter bears responsibility in the form of the decrease for it of the amount of the profit in proportion to the amount of the revenues for which the unhauler amount of freight accounts;

in case of violations by the "Motor Transport Combine" of the clauses of the agreement contract the "Contractor" does not bear responsibility for the fulfillment of the plan.

The responsibility of the "Motor Transport Combine":

for the nonhauling of panels through the fault of the "Motor Transport Combine" in accordance with the results of the month the latter compensates the "Contractor" for the lost profit, while it pays the "Client" a fine in the amount of 20 percent.

The responsibility of the "Client":

for the failure to present cargo for transportation the "Client" pays a fine in the amount of 20 percent of the cost of transportation.

The initiative of the brigade of drivers, which is headed by Ye. Fedyunin, was endorsed by the Presidium of the All-Union Central Council of Trade Unions and was recommended for extensive dissemination.

The Contract in the River Fleet

The consolidated multiple-skill brigade of workers of the Rostov port, which is headed by USSR State Prize winner Viktor Ivanovich Zabolotskiy in the Volga-Don Steamship Line, is the initiator of the introduction of the brigade contract in the river fleet in a steamship line (the Volga-Don). This brigade was the first in river transport to begin to work according to the brigade contract method. Its initiative was endorsed by the Collegium of the RSFSR Ministry of

the River Fleet, the Presidium of the Central Committee of the Maritime and River Fleet Workers Union and the Rostov Oblast Trade Unions Council.

In case of the brigade contract the longshoremen process the ship "from arrival to departure" completely by their own forces and assets, the brigade in this case bears responsibility for layovers of the ship and railroad cars through the fault of the brigade in excess of the standard time, as well as for the quality of the loading and unloading operations.

The flow chart of the work, the arrangement of the members of the brigade by operations, the cost of the work being performed and the time of the processing of ships and railroad cars are established in the job order.

In all 15 portal cranes with a lifting capacity of 5 and 10 tons, lift trucks, trimming machines, scraping equipment and bulldozers are attached to the brigade.

The brigade bears responsibility not only for the time of the processing of ships and railroad cars, but also for the observance of the technology of handling operations, warehousing, the preservation of cargo, the proper operation of the equipment and means of small-scale mechanization, which are attached to it. The collective works in accordance with "The Standard of the Quality of Freight Operations," which was approved at the Rostov port. If a flaw has been allowed, the brigade eliminates it by itself, without any additional payment.

A special set of measures--material and moral stimulation for the assurance of a high quality of work--has been elaborated. In case of the exceeding of the norms of the processing of ships and railroad cars, as well as the expenditures and cost of loading and unloading operations as against the plan the brigade loses the bonuses.

The mutual responsibility of the parties--the brigade and the administration--is clearly specified in the agreement on the performance of loading and unloading operations on cost accounting terms, which is concluded for a year. Thus, the following basic items are recorded in the agreement between the administration of the first freight area and the workers of the brigade of V. Zabolotskiy for the performance of loading and unloading operations on cost accounting terms.

The cost account brigade is obliged:

to fulfill the comprehensive shift output norms for timber cargo by not less than 112 percent;

to process all ships on time and ahead of time, to decrease the layover time of ships and railroad cars for cargo operations by 4 percent;

to handle the cargo with a high quality and safely. On the basis of the further introduction of the standards of the enterprise to strive for the title "Brigade of Outstanding Quality of Cargo Operations," while individual members of the brigade are to strive to obtain the title "Outstanding Worker of Quality";

to treat the equipment carefully, to operate properly the transfer machines and hoisting devices, to observe the rules of the storage of materials, to consume them efficiently;

to strive for the decrease of losses of working time, to achieve their decrease by 5 percent;

to observe the rules of labor safety and technological discipline;

to ensure the fulfillment of the plan indicators which have been established by the administration;

to use in work advanced methods of labor, new equipment and advanced technology.

In turn, the administration of the first freight area is obliged:

to provide the cost accounting consolidated multiple-skill brigade in good time with transfer machines, hoisting devices, materials and everything necessary for successful work. For this to attach to the brigade specific electric cranes, scraper bulldozers, a loader, a lift truck, trimming machines and hoisting devices for the entire range of cargo;

to create the conditions for the introduction of new equipment, advanced technology, the scientific organization of labor;

to ensure the employment of the workers of the brigade in loading and unloading operations for not less than 97 percent of the budget of working time;

to attach to the brigade for the carrying out of the engineering and technical supervision of the loading and unloading operations a chief of the freight area and a deputy chief of the area for mechanization.

The administration plans the following indicators for the brigade: the amount of loading and unloading operations (in thousands of standard hours) and the financial result (in thousands of rubles).

The workers of the brigade are paid bonuses from the wage fund for the fulfillment of the norms of the processing of ships and railroad cars for the month as a whole in the amount of 15 percent of the monthly wage in loading and unloading operations; for each percent of the decrease of the norms of the layover time of ships for freight operations--3 percent, while with respect to the job order--4 percent, but not more than 35 percent of the wage specifically with respect to each ship; for the fulfillment of the comprehensive shift norms for loading and unloading operations--10 percent, while for each percent of overfulfillment--1.5 percent, but not more than 15 percent of the wage in accordance with the order.

Bonuses are paid to the brigade from the material incentive fund for the fulfillment of the plan on the financial result during the quarter on the condition of the fulfillment of the cost accounting indicators (the volume of freight handling and the quality of the work being performed) in the amount of

10 percent and for each percent of overfulfillment--0.2 percent of the wage in port operations, but not more than 15 percent of the wage.

In case of a shortage of assets of the material incentive fund, which is intended for the payment of bonuses to the workers, the sum of the bonus, which has been credited in accordance with the indicator of the payment of bonuses, is reduced.

The nonfulfillment by the freight area of the obligations in accordance with the agreement is grounds for the complete or partial decrease of the amount of the bonus to the workers of the freight area. In case of damage caused by the brigade the financial result, which was achieved by the brigade, is reduced by the amount of the damage which is determined by the port with the participation of the brigade.

The brigade was the first in the steamship line to begin to use the job contract plus bonus wage system for the end results, the first to introduce standards of the quality of freight operations, which contributed to the successful fulfillment of the assignments of the state plan and the socialist obligations and the decrease of commercial spoilage. A labor passport of the production brigade for the 11th Five-Year Plan was drawn up and adopted by the collective.

During the study of the first two themes of the course the students should master the basic principles of the formation of brigades and the organization of their work and the demands, which are made on brigade cost accounting, should analyze the work experience of contracting collectives and should think over the specific suggestions on the introduction of the brigade form of the organization and stimulation of labor in their own collective and the increase of its effectiveness.

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LABOR

NEW PROCEDURES IN INCENTIVE FUND FORMATION ILLUSTRATED

Moscow FINANSY SSSR in Russian No 11, Nov 83 pp 55-58

[Article by V. P. Ignatushkin, deputy chief of department, USSR Ministry of Finance: "New Developments in Incentive Fund Formation"]

[Text] As of 1 January 1983 the following law, approved by the USSR Gosplan, the USSR Ministry of Finance, the USSR State Committee for Labor and the All-Union Central Council of Trade Unions, has become effective: "Regulations Governing the Procedure for Direct Deductions to the Incentive Funds for Conserving Material Resources in Industry During the Years 1983-1985." Incentives for the conservation of material resources are provided by assuring a direct linkage between the deductions to the material incentive fund and the fund for sociocultural measures and housing construction (incentive funds) of associations (enterprises), on the one hand, and the level of effects produced by economizing on the material expenditures on production, on the other.

A new incentive indicator has been introduced in administrative practice--the ceiling on material expenditures (in financial terms) per ruble of output (or operations), and for 1983-1985 it has been approved by the industrial ministries and departments as well as by production associations (enterprises). Whenever that indicator deviates from the approved ceiling, the deductions to incentive funds increase or decrease. A typical scale of deductions has been correspondingly devised. Let us consider it.

The problem is to equate (from the standpoint of incentives) enterprises with differing ratios between the wages they pay (and hence also, all other conditions remaining equal, their incentive funds) and their material expenditures. These ratios vary not merely among enterprises of discrete branches of the national economy but also within individual ministries. Thus, in the machine-building industries the maximum ratio of wages (plus extra pay) to material expenditures is twice as high as the minimum (Table 1, conditional examples).

Let us assume that both enterprises [in Table 1] have achieved economies of material expenditures on the same scale--110,000 rubles (or 0.11 percent of the expenditures). With the aid of the typical scale we will calculate the amount of direct deductions to the incentive funds (the sources of these deductions will be described later): at enterprise A, $110 \times 0.32 = 35,200$ rubles; at enterprise B, $110 \times 0.65 = 71,500$ rubles. If the above amounts of deductions are compared with the incentive funds at the enterprises, the results will be virtually identical: 14.7 and 14.9% ($35.2/240 \times 100$ and $71.5/480 \times 100$).

Table 1.

Unit of Measurement	Enterprise	
	A	B
1. Wages (plus extra pay)	millions of rubles	2.0 4.0
2. Material expenditures	millions of rubles	10.0 10.0
3. Ratio (1:2)	coefficient	0.2 0.4
4. Incentive fund (12% above the wage fund)	thousands of rubles	240 480
5. Increase (or reduction) in incentive funds, in % of savings in (excess spending of) material outlays (according to typical scale)		0.32 0.65

The cost of accessories is included in the direct material expenditures (outlays) on production. Economizing on the expenditures on accessories is as a rule extremely difficult and the possibilities for conserving material resources decrease with an increase in the proportion of accessories. Hence, the new regulations (Point 5) grant to the ministries, upon consultation with the trade-union committee, the right to adopt a differentiated approach when determining the scale with respect to specific enterprises and associations, depending on the particular proportion of product accessories in the overall sum of material expenditures (for the ministry, subsector or group of enterprises). The basis for differentiating the numerical values in such cases is the typical scale considered here.

The procedure for calculating direct deductions to incentive funds for savings achieved by reducing material expenditures is followed in two stages: during the development of yearly plan indicators for the next year and during the actual fulfillment of the plan. Below we present sample calculations for the two variants of the first stage (performed while defining more precisely the plan targets for the next year of the five-year plan), with the first variant assuming a planned decrease in the ceiling on material expenditures (i.e. savings) and the second, exceeding that ceiling (overspending of resources) (Table 2).

Table 2

	Unit of Measurement	Variant 1		Variant 2	
		5-Year Plan	Yearly Plan	5-Year Plan	Yearly Plan
1. Volume of marketable output	millions of rubles	100	105	100	98
2. Approved ceiling on material outlays	kopecks per ruble	70	68	70	72
3. Overall ceiling on material outlays (Line 1 + Line 2)	millions of rubles	$\frac{70}{(70 \times 100)}$	x	$\frac{70}{(70 \times 100)}$	
		<u>100</u>			
4. Wage and extra pay fund	millions of rubles	20	x	20	x
5. Material incentive fund	millions of rubles	2.0	x	2.0	x
6. Fund for socio-cultural measures and housing construction	millions of rubles	0.8	x	0.8	x
7. Total, all above incentive funds (lines 5 + 6)	millions of rubles	2.8		2.8	x
		(2.0+2.8)		(2.0+2.8)	
8. Ratio of wage fund to material expenditures (line 4:line 3)	coefficient	0.29	x	0.29	x
		(20:70)		(20:70)	

Calculating in absolute figures the savings (or overspending) of material outlays in the revised yearly plan as compared with the target for the 5-year period, requires knowledge of the figures on: a) the ceiling on material expenditures, in kopecks per ruble of output (or operations) under the 5-year plan for the concerned year of the plan, should be calculated in terms of (multiplied by) the volume of output (operations) under the yearly plan; b) the ceiling on material expenditures, in kopecks per ruble of output (operations) under the annual plan, should be recalculated in terms of (multiplied by) the volume of output (operations) also under the annual plan; c) the difference between these quantities reflects the savings (+) or overspending (-) of material expenditures compared with the ceiling. In the example given these figures and final totals are as follows: for variant 1, $(70 \times 105) - (68 \times 105) = +2.1$ million rubles (savings); for variant 2, $(70 \times 98) - (72 \times 98) = -1.96$ million rubles (overspending).

According to the typical scale, for a coefficient of 0.29 the incentive fund is either increased or decreased by 47 percent depending on the absolute value of the savings or overspending of material expenditures compared with the established ceiling. In our example the corresponding figures look as follows:

under variant 1, incentive fund is credited with an additional 1,316,000 rubles $(2.8 \times 47):100$, while under variant 2 the incentive fund is reduced by 1,316,000 rubles $(2.8 \times 47):100$. But since the Regulations prescribe a ceiling of 25 percent on the reduction in the incentive fund under the 5-year plan for the corresponding year, the actual deduction is 700,000 rubles $(2.8 \times 25):100$.

The allocation of the savings in (or losses due to overspending of) material expenditures in rubles between the material incentive fund and the socio-cultural and housing construction funds is based on their proportions within the overall incentive funds. In the example given, the proportions between the former fund and the latter two funds taken together are 71.4 and 28.6 percent, respectively (Table 3).

Table 3

Credit (+) or Debit (-)

	Material Incentive Fund	Socio-Cultural and Housing Construction Fund	Total
Variant 1	$+920(1.288 \times 71.4):100$	$+368(1288 \times 28.6):100$	+1288
Variant 2	$500(700 \times 71.4):100$	$200(700 \times 28.6):100$	-700

Therewith ends the first stage, establishing the procedure for promoting the adoption of a more ambitious yearly plan for the conservation of material expenditures beyond the targets specified in the 5-year plan for the year concerned.

The second stage is constituted by the system of incentives and responsibility for the utilization of material resources during the fulfillment of yearly plans. As can be seen from Table 4, all initial indicators are expected to increase since the beginning of the year. Additional data also are introduced (lines 5 and 6 in table). The point is that various systems of bonuses for the conservation of particular types of materials (raw materials, fuel, energy, etc.) are widely employed in administrative practice. If under the regulations in force these bonuses are included in production cost, they cannot be included in the incentive funds credited for reducing the ceiling on material expenditures. All the other input data as applied to actual results remain unchanged.

Table 4

Measurement	Unit of	First Quarter		6 Months		9 Months		Year	
		Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Input data:									
1. Volume of commercial output	millions of rubles	25	25	50	50	75	80	105	110
2. Ceiling on material expenditures	millions per kopeck	68	67.6	67.5	68.5	68.2	67.7	68	67.5
3. Overall limit on material expenditures (line 2 x line 1)	millions of rubles	17.0	16.9	33.75	34.25	54.56	54.16	74.8	74.25
		100							
4. Savings (+) or overspending (--) (planned--actual) of material expenditures	millions of rubles	x	+0.1	x	-0.5	x	+0.4	x	+0.55
Additional data:									
5. Spent on bonuses for savings of particular materials	millions of rubles	x	0.1	x	0.1	x	0.15	x	0.20
6. Savings of material expenditures minus bonuses	millions of rubles	x	-	x	-	x	0.25	x	0.35
a) $(68.2 \times 80) : 100$									
b) $(67.7 \times 80) : 100$									
c) $(68 \times 110) : 100$									
d) $(67.5 \times 110) : 100$									

The coefficient characterizing the ratio of wages plus extra pay to the sum total of material expenditures amounts to 0.29; the debiting (or crediting) of incentive funds (according to the ministry-approved scale) is specified at 47 percent; the proportion of the material incentive fund in the overall total amount of incentive funds is 71.4 percent; and the proportion of the socio-cultural and housing construction funds, taken together, in the overall total amount of incentive funds is 28.6 percent.

Proceeding from these input data, let us calculate the yearly crediting or debiting of incentive funds. During the first quarter the enterprise achieved savings of 100,000 rubles in material expenditures and paid bonuses amounting to 100,000 rubles for savings of particular types of materials. In this case incentive funds are not directly credited (see Point 6 of the Regulations). Over the first half of the year the enterprise overspent by 500,000 rubles its ceiling on material expenditures. Consequently, the incentive funds were reduced as follows:

a) the material incentive fund:

$$\frac{-500,000 \text{ rubles} \times 47}{100} \times \frac{71.4}{100}$$

=-167,800 rubles;

b) the socio-cultural and housing construction fund:

$$\frac{-500,000 \text{ rubles} \times 47}{100} \times \frac{28.6}{100}$$

=-67,200 rubles.

The incentive funds cannot be reduced by more than 25 percent of the amount specified in the 5-year plan for the year concerned. But since the data in the 5-year plan are not broken down into quarters of the year, the corresponding figures have to be calculated. From Table 2 we take the funds specified for the 6-month period--1.4 million rubles (2.8:2) and divide by that sum the overall decrease in incentive funds, thus arriving at the figure of 16.4 percent below the established maximum ceiling. Over 9 months savings of 400,000 rubles were achieved and at the same time bonuses totaling 150,000 rubles were paid for savings of specific materials. Thus, the balance of 250,000 (400,000--250,000) rubles can be used for crediting the incentive funds, and it is allocated as follows between the different types of these funds: a) $\frac{250,000 \text{ rubles}}{100} \times \frac{47}{100} \times \frac{71.4}{100} = +83,900 \text{ rubles}$ for the material

incentive fund; and b) $\frac{250,000 \text{ rubles}}{100} \times \frac{47}{100} \times \frac{28.6}{100} = +33,600 \text{ rubles}$

for the socio-cultural and housing construction fund.

Over the year the savings in material expenditures totaled 550,000 rubles, which leave a balance of 350,000 (550,000--200,000) for crediting to the incentive funds. Consequently, that balance is allocated as follows: a) for the material incentive fund, $\frac{350,000 \text{ rubles}}{100} \times \frac{47}{100} \times \frac{71.4}{100} = +117,500$

rubles, of which 33,600 (117,500--83,900) rubles for the fourth quarter of the year alone; and b) for the socio-cultural and housing construction fund, $\frac{350,000 \text{ rubles}}{100} \times \frac{47}{100} \times \frac{28.6}{100} = +47,000 \text{ rubles}$, of which 13,400 (47,000--

-33,600) rubles for the fourth quarter of the year alone). The calculations are conducted over the yearly period. If savings of material expenditures are achieved, the enterprise has the right to augment its incentive funds. In practice this right can be utilized only if additional fund sources are available. These sources are specified in the Regulations, and their list is

extremely long in view of the importance of an efficient, rational and careful attitude toward conserving the allocated material resources at the present stage.

The principal such source should be the plan-exceeding income, since savings in material expenditures result in reducing production cost and thereby increase income or reduce losses. At the same time, in management practice there may occur cases in which the plan-exceeding income (or the loss reduction) may be lower than actually achieved savings in material resources. In such a situation the incentive funds may be augmented by drawing on the plan-exceeding income of a ministry as a whole, or on the plan-exceeding income of individual associations and enterprises within that ministry. The ministry's reserve income and incentive fund may also be utilized for this purpose. For enterprises which under the plan operate at a loss the difference between the planned and actual fulfillment (savings, in absolute figures) is taken as the basis for calculations, i.e. without conversion to actual volume and variety of output. Part of the plan-exceeding income for augmenting incentive funds is allotted in accordance with the established procedure directly before the size of these funds is determined according to the established norms and fund-forming indicators.

The enterprises converted to the normative method of income distribution are, if they overfulfill their income plans by up to 3 percent, allocated 50 percent of their plan-exceeding income, with the other 50 percent being transferred to the [state] budget. For the enterprises which overfulfill their income plans by more than 3 percent these proportions are 75 and 25 percent, respectively. At the enterprises distributing their income according to the normative method, incentive funds can be augmented in excess of the plan, as a reward for savings in material resources, from plan-exceeding income before it is distributed in accordance with the established norms.

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LABOR

MANPOWER CEILING PROBLEMS AT ENTERPRISES WEIGHED BY EXPERTS

Moscow PLANOVYE KHOZYAYSTVO in Russian No 11, Nov 83 pp 91-94

[Article by A. Tkachenko, candidate of economic sciences; B. Veretennikov, chief of administration, RSFSR State Committee for Labor; and L. Belkina, senior research associate: "Problems in Determining and Introducing the Manpower Ceiling Indicator"]

[Text] As is known, manpower ceilings were not ratified in one-year and five-year plans between 1965 and 1979 on the assumption that the size of the work force was indirectly regulated by the wage fund. However such a measure did not promote economies of labor. The intensification of social production production and the restriction of work force size required the more precise calculation of labor resources and the more precise planning of their employment.

The manpower ceilings that were set beginning in 1980 have already produced certain positive results. The state has assigned planning organs and the system of labor organs responsibility for monitoring the observance of the established ceilings. Coordination of the ceilings with local organs in many oblasts of the Russian Federation revealed that enterprises' requests for more manpower in 1982 were on the average one-third too high. The coordination process is most effective in oblasts that have established interdepartmental commissions under oblispolkoms for the purpose of examining planned manpower ceilings. Such commissions are operating with success in Bryansk, Belgorod, Gorkiy, Tula, and Perm Oblasts and other oblasts of the RSFSR.

However, the program is still marred by a number of defects: uniform deadlines for coordinating planned ceilings have not been established for ministries and enterprises and most ministries lack the materials for such coordination for the entire range of subordinate enterprises. At the time the ceiling was being drafted for 1982, coordination was carried out in 43 (out of 73) administrative-territorial units of the RSFSR. It frequently happened that union-republic ministries ratified manpower increases without consulting local organs.

The result of shortcomings in the planning and organization of the monitoring of the observance of the established ceilings is that many enterprises and associations exceed them. In 1982, violations of this type were committed by one-third of the enterprises belonging to the RSFSR Ministry of the Fish Industry, the RSFSR Ministry of the Fruit and Vegetable

Industry and RSFSR Goskomsel'khoztekhnika [State Committee for the Supply of Production Equipment for Agriculture] and by the great majority of enterprises belonging to the RSFSR Ministry of the Meat and Dairy Industry. According to the totals for 1982, one enterprise in five in RSFSR industry employed more manpower than was authorized in the plan. Nor did the situation change substantially in 1983.

The results of the initial years of manpower ceilings show that the development and coordination of manpower ceilings must above all be linked to the manpower balance. In our view, the establishment of ceilings will enable state labor agencies to exert an active influence on the interbranch, intrabranch and regional proportionality of labor resources. But this requires the coordination of work force size in branches of not only material production but also in branches of nonmaterial production which tend to increase the size of their work force more rapidly than other subdivisions of the national economy and to "attract" manpower even when it is in short supply. Thus an analysis of employment in branches of the national economy in regions with a manpower shortage and in regions with a manpower surplus revealed the absence of differences between these regions in the dynamics of employment in the service sector.

The application of manpower ceilings acquires special significance in planning the formation and development of territorial production complexes (TPK's), which are not only an aggregate of enterprises and structures, but are also an integral dynamic system of material and labor resources. A certain type of natural resource is the basis upon which a TPK is formed. But as an integrated organism, it includes all enterprises in the productive and nonproductive sphere. It is for this very reason that it is possible to speak of the management of the TPK as a system of physical and personal factors of production. The high effectiveness of the basic direction of the development of the complex may impede the formation of the multifunctionality of its economy, for example, in light industry and in the food industry and in branches of the social infrastructure, which consequently can lead to the incomplete utilization of certain categories of labor resources.

In our view, the development of the TPK requires a centralized capital investment fund. Otherwise it is impossible to attain the harmonious development of enterprises in industry and construction as well as in the productive and social infrastructure. At the same time, there is also a need to centralize the control of labor resources. The latter can be examined from two aspects: the existing system of workplaces and projected changes in this system as a result of investment policy and available manpower. In our opinion, the aggregate manpower of a given TPK with regard to quantity and quality is the binding link between these aspects of socialist expanded reproduction.

We believe that the problem of establishing manpower ceilings should be viewed from the standpoint of the occupational level of the work force. For example, in the process of developing the Baikal-Amur Mainline and a number of production complexes in Siberia, it was found necessary to consider not only the quantity of manpower hired but also the skill level of specialized training of this manpower since in many instances the workers' were not properly qualified to fill given jobs. On the one hand, in the vicinity of

construction of the mainline, highly skilled workers frequently perform simple manual labor, which leads to higher reverse migration of manpower and to the lowered effectiveness of production. On the other hand, many Siberian production complexes predominantly hire young workers who do not as yet have an occupation and the appropriate skills from the European part of the country (approximately 80 percent of the workers who come to Western Siberia do not have an occupational specialty, while 50₂ percent of the workers go to work in other organizations in the first year).

In our opinion, the question of the qualitative aspects of assimilating new capacities and of increasing labor productivity in eastern regions of the country must be linked to the task of optimizing outlays on the reproduction of labor power. The importance of this task grows in connection with the accelerated growth of these outlays and the shortening of the amortization time of the acquired knowledge. Therefore, it would be feasible to begin compiling manpower balances broken down by sex and age specifically with the TPK's and as a first step in the experiment to plan not a general manpower ceiling but rather to establish a ceiling on various categories of manpower on a separate line. European socialist countries have practiced this approach for a number of years and acknowledge it to be successful in imposing manpower ceilings, for example, on white collar and administrative personnel at industrial enterprises.

In our view, the manpower ceiling as a planning norm should give enterprises more time for economic maneuvering and should encourage enterprises and ministries to base their planning on the more thorough and detailed analysis of the effectiveness of manpower utilization so that they may increase production at existing enterprises with the same or an even smaller work force. This requires that the ceiling be set for an entire five-year period and broken down by year with the condition that it be raised intensively, i. e., with the condition that there be an absolute reduction in the work force in production or a relative reduction in the size of the work force per unit of output or work. At the present time, the ceiling is set for only a year.

Economic incentives for enterprises to reach as soon as possible the manpower ceiling planned for the end of the five-year period, i. e., the actual or conditional separation of manpower, should be provided on a progressive scale: the sooner the enterprise conserves on manpower, the greater will be the norm governing payments to the material incentive fund. For example, in the first year of the planned period, 100 percent of the wages saved as a result of the reduction in the size of the work force are transferred to the material incentive fund; in the second year-- 90 percent; in the third year--70 percent; in the fourth year--50 percent; and in the final year--30 percent. The introduction of such a scale (if only in experimental form) would be aimed at effecting an actual saving of manpower. In our view, it can be used in the case of enterprises that have a manpower ceiling and that will have a smaller work force in the planned period than in the base period.

This understanding of the economic essence of the ceiling indicator is associated with its inclusion in the general system of management indicators and methods influencing the release and redistribution of manpower that must become the basic source of manpower for newly activated capacities and enterprises. To economic units (and to a no lesser degree to their executive

branch organ--the ministry), the application of the manpower ceiling is a dramatic departure from the planning of their own activity with an orientation toward stable (to a certain degree, inert) management trends to a predominantly normative approach.

Incentives to curb the size of the work force are directly associated with the drafting of plans for reducing manual, unskilled labor. The corresponding target in the 11th Five-Year Plan has become such a directive-type indicator as the manpower ceiling. But it would be wrong not to consider their reciprocal conditionality in planning. The reduction of the share of manual, heavy and semiskilled labor and the search for internal production reserves for increasing labor productivity at the enterprise are ways of increasing production with the same or a smaller work force. The manpower ceiling should be planned specifically on the basis of this premise.

Reduction of the share of manual labor must lead to the reduction of the planned number of workers in industrial production. The two types of curtailment of employment do not coincide in a quantitative sense. The lack of actual release of manpower in the given instance means that released workers are secretly being resorbed at a given enterprise. This is only possible by reducing manpower in excess of the norm, which we understand to mean not the excess of the established number but the excess of calculated work force determined on the basis of progressive norms. The latter mean the universal application of factor-by-factor calculation of labor productivity at enterprises and in associations.

At the present time, planned ceiling is substantiated by the enterprise or by the branch management so that it can coordinate the ceiling with central planning and labor agencies if an increase in the size of the work force is envisaged. The planning of the manpower ceiling indicator must be based on progressive norms associated with the lowering labor-output ratio, i. e., must limit every enterprise's requirement for labor resources. In order to make calculations on the basis of this indicator, it is essential to resolve certain common problems and first of all to introduce the balance of workplaces that would promote correspondence between the level of the enterprise's manpower requirement and the level specified in the norms. Experimental balances were developed by the NIEI [Scientific Research Institute of Economics] of USSR Gosplan and the RSFSR State Committee for Labor together with the LFEI [Leningrad Institute of Finance and Economics] im. N. A. Voznesenskiy. Testing of such balances in the Czechoslovakian SSR showed that they are highly effective when jobs outnumber workers.⁴ Second, the substantiation of such norms is associated with the dynamics of the shift coefficient. While on the whole, it is not subject to substantial fluctuations, stricter control must be exercised over the establishment of manpower ceilings in the case of enterprises that lower the shift coefficient in the course of fulfilling their five-year plan.

The establishment of intensive ceilings together with the target of curtailing manual labor will help to accelerate the rate of manpower separation. Given the predominantly intensive type of economic growth, the reduction of the number of jobs must be greater than the number of newly created jobs⁶, excluding regions of new development. It is specifically from this standpoint that ceilings must be evaluated for ministries and departments as a whole and for large associations in old, settled regions.

Programs for curtailing manual labor are primarily associated with the structure of capital investments. The share of reconstruction and modernization must grow and reconstruction proper must not increase the number of workplaces at the enterprises as a whole, but must reduce their number as a result of the speedier reduction of the number of auxiliary, manual laborers. As emphasized at the 26th Party Congress, funds allocated for reconstruction and technical retooling are recouped three times sooner than when new production capacities are created. What is more, the manpower requirement is also smaller in the former instance.

Socialist countries have not yet achieved an optimal equipment renovation timetable. The modern level of industrial production demands that the maximum service life of machine tools be lowered to 15 years. This is an important problem in the USSR and especially in the old industrial regions. "While the volume of modernization work has increased in recent years, it cannot be deemed sufficient, particularly if one considers the small percentage of equipment that is retired."⁶ Accordingly, when labor agencies verify the justifications that enterprises and departments offer for a certain manpower ceiling, they should analyze not only labor productivity, but also capital per worker and the technical state of production.

In our view, a significant role in the mechanism for the development and subsequent monitoring of the manpower ceilings should belong to local agencies (planning and labor) responsible for a given region. At the present time, they have a considerable impact on the economic activity of enterprises of local subordination. However, local labor agencies find it virtually impossible to invoke sanctions against union and union-republic enterprises that systematically exceed their manpower ceilings since the ministries to which these enterprises belong raise the ceilings without consulting the local agencies.

In most cases, it is pointless to invoke sanctions stripping enterprise managerial personnel of up to 50 percent of their bonuses for exceeding the manpower ceiling for the year for three reasons: (1) local agencies can only petition the given ministries and people's control [narodnyy kontrol'] agencies to apply this measure; (2) the given personnel have already been stripped of their bonuses for violations of other normative indicators; and (3) sanctions of this type do not affect the economic interests of the collective even though they are associated with its activity.

If an enterprise surpasses its production plan at the same time that it regularly exceeds its manpower ceiling, its payroll funds will be slashed up to 50 percent. But this sanction can be invoked only if the enterprise has at the same time failed to fulfill its labor productivity growth plan which is indirectly connected to the manpower ceiling. In our view, instead of invoking the given sanction, we should establish such a procedure that wages paid to workers employed in excess of the manpower ceiling would be classified as an overexpenditure and would be paid out with the proviso that all enterprise managerial personnel be deprived of their performance bonuses for the corresponding period.

The effectiveness of the use of the labor potential of a given enterprise is to a certain degree reflected in the dynamics of personnel turnover. Therefore in the process of coordination and pre-plan development of manpower ceilings, it would seem to be a good idea to identify enterprises, associations and science-production associations that have a higher percentage of personnel turnover than the average for analogous economic units as well as to identify enterprises where the turnover rate has risen in the preceding period. The manpower utilization of the latter should be more closely monitored and they should be the first to coordinate their ceilings with the local agencies irrespective of whether they plan to increase the size of their work force or not. Such monitoring must be closely connected to the analysis of the curtailment of manual labor.

In our opinion, sanctions against ceiling violators should not be linked to the terms of fulfillment of plan indicators for labor productivity and output volume. They should also be applied if the latter are fulfilled. In the latter instance, they should be invoked on a slightly lower scale and adjustments should be made in the procedure for forming the material incentive fund: a sum equal to all or a certain percentage of the wages paid to workers employed in excess of the manpower ceiling should be withheld from the fund. Since the material incentive fund is based on performance for the year and the manpower ceiling is as a rule set on a quarterly basis, appropriate amounts must be excluded from the fund in the even of quarterly violations of the ceiling even if the ceiling for the year is met. The material incentive fund may be reduced by 25 percent of the wages paid to workers employed in excess of the quarterly ceiling. At the same time it is advisable to introduce an economic incentive system--separate material incentive and economic incentive systems are undesirable and less effective.

The mechanism for devising manpower ceilings must be improved in such a way that it will also be more advantageous for enterprises and ministries to adopt the tightest ceilings reflecting effective employment.

FOOTNOTES

1. See T. A. Shokareva, "On Forecasting the Distribution of Labor Power in the National Economy," *IZVESTIYA AN SSSR. SERIYA EKONOMICHESKAYA*, No 3, p 54.
2. See *PLANOVYE KHOZYAYSTVO*, No 4, p 57.
3. See: "Mobil'nost' rabochey sily pri sotsizlizme. Sotsial'no-ekonomicheskiy mekhanizm raspredeleniya" [Work Force Mobility Under Socialism. The Socioeconomic Distribution Mechanism], N. I. Mikul'skiy, Ed., Moscow, "Nauka," 1982, pp. 76-79.
4. See *PLANOVYE KHOZYAYSTVO*, No 8, 1982, p 57.
5. See: "Ekonomicheskiye zakony sotsializma: sistema, osobennosti deystviya, formy i metody ispol'zovaniya" [Economic Laws of Socialism: the System, Specific Feature of Their Action, Forms, and Methods of Using Them], L. Abalkin and G. Shul'ts, Eds., Moscow, "Mysl'," 1981, p. 232.

6. L. A. Kostin, "Rost proizvoditel'nosti truda--osnovnoy faktor razvitiya proizvodstva i povysheniya blagosostoyaniya naroda" [The Growth of Labor Productivity--The Basic Factor in Developing Production and in Improving the People's Well-Being], Moscow, "Mysl', 1980, p 11.

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DEMOGRAPHY

IMPACT OF DEMOGRAPHIC CHANGES ASSESSED

Moscow ZNANIYE-SILA in Russian No 9, Sep 83 pp 5-7

[Article by A. Vishnevskiy, candidate of economic sciences: "A Time of Demographic Changes"]

[Text] In 1925 a Soviet demographer working in the Ukraine, Arseniy Petrovich Khomenko, wrote that "an entire demographic revolution is taking place" there. And 9 years later the phrase "the demographic revolution" figured as the title of a book by the French demographer Adolphe Landri [transliterated]. It is hardly likely that Landri was familiar with Khomenko's brochure, printed in a small number of copies in Kharkov in the Ukrainian language. But that expression was an idea whose time was ripe.

Of course, the very word "revolution" had long before been used in Europe--at least since the capture of the Bastille in 1789, and it was widely employed in the 19th century. K. Marx and F. Engels wrote about not only the social and political revolution but also the industrial and agrarian revolution, "entire revolutions" in trade, the philosophic revolution, the religious revolution, etc. Even so no one had thought of applying this term to demographic processes.

Until the very end of the 19th century everything about these processes had seemed extraordinarily stable. "The Divine Order of Changes in Humankind, Demonstrated by the Author on the Basis of the Births, Deaths and Multiplication of People"--this is how the German pastor Johann Peter Sussmilch had titled his two-volume treatise in 1741. And this inviolable order, seemingly immune from any revolutions, had persisted even till the end of the 19th century. We read, for example, in a book written in the last years of the past century: "The variation in annual birth rate, evident over a long period of time, is strikingly small."

Some 20 or 30 more years had passed and it almost suddenly became obvious that not a single pillar of the "divine order" had remained. It turned out that the striking stability of demographic processes had long since become undermined, although even demographers themselves had not realized it at the time. Once the inertia of thought was overcome, however, it turned out that in many countries demographic changes acquired a scale and depth such that they could not be termed anything else than a revolution.

The demographic revolution began in West Europe in the 18th century. It reached Russia after a lag of nearly a century. But ultimately it spread in our

country as well, and today, after another century has passed, its results can be summed up.

Our interest is chiefly drawn to a comparatively small period starting roughly from the 1870s and ending with the early 1960s of this century. What did then happen during that historically brief interval of time?

Toward the end of the 19th century Russia was among the countries with the highest birth and mortality rates. At that time 250-300 of every 1,000 newborns in this country had died before reaching one year of age. About one-half of that 1,000 died before reaching 20 years of age and the average lifespan was roughly 32 years. In birth rate, in any case, Russia probably had led all the other large European countries. The yearly birth rate per 1,000 capita was 50 children in this country (compared with 48 in India, 34 in Germany and 22 in France). The average woman gave birth to more than 7 children during her lifespan.

Toward the early 1960s the picture changed strikingly. Average lifespan had grown longer than ever before in the history of mankind, coming close to 69 years. And out of every 1,000 children born only 40 died. Ninety-three percent of all children born survived to the age of 20 and 77 percent, to the age of 60. During the same period, birthrate per 1,000 capita decreased in half--roughly to 25, and the number of children born of the average woman dropped to below 3.

Tremendous changes took place over such a short period. But the strange thing is that equally drastic changes should be expected in the population growth rate considering that it is determined precisely by the birth and mortality rates. Nevertheless, although the unprecedented changes in birth and mortality rates may have at first glance seemed due to various factors, they display a mysterious convergence, so that the interaction of these two processes during the 1950s and 1960s has produced roughly the same results as in the second half of the last century. For example, in European Russia--reliable figures on the pre-Revolutionary period being available for it only--during the period from 1865 to 1913 births and deaths per 1,000 capita had averaged 48.9 and 34, respectively. In other words, the yearly natural population growth was 14.9 per 1,000 capita. During the 1950-1970 period in the USSR there was an average of 22.6 births and 7.9 deaths per 1,000 capita: the contrast with pre-Revolutionary indicators is huge, yet the natural population growth was nearly the same--14.7 per 1,000 capita.

It is difficult to avoid the idea that the causal independence between birth and mortality rates is only apparent, that in reality population reproduction is an integral process with the birth and mortality rates being the opposite poles of that process. The population is a complex social system linked by countless connecting and feedback channels. It is the social information circulating through these channels that assures the relative unity of and equilibrium between the dynamics of birth and death rates.

This is not a novel idea. Biologists are aware that, over longer periods of time, animal populations preserve a rough numerical stability, which is possible only owing to some equilibrium between deaths and births. True, this equilibrium can also be attained in the presence of its constant disturbances. When considered over longer periods of time, a population remains numerically

constant but this does not preclude its considerable short-period changes, which usually depend on the variation in the conditions of interaction of the population with its environment. But in measure with its advance on the evolutionary ladder, the structure of a population grows more complex, its internal relations and connections become more highly developed--and its independence of the environment grows as does the role of the internal mechanisms directing its numbers: the equilibrium between births and deaths becomes stronger.

Is it surprising that in the human society, where the biological mechanisms directing birth and death rates at the population level, are largely superseded in importance by social and much more elaborate mechanisms, the "demographic equilibrium" proves to be much more reliable? In the course of its historical development, every society forms a complex and stable system of "demographic relations," which is precisely the system needed to maintain the demographic equilibrium under given historically determined conditions. It is this that accounts for the "internal environment" of a demographic system and prevents the demographic behavior of humans from changing in response to random changes in the economic, ecological or political situation.

It is another matter when, instead of such economic, ecological or political fluctuations, radical changes in living conditions occur and affect deeply their very demographic existence, which is an extremely rare occurrence in history. Then the type itself of the demographic process may change. And this inevitably entails a major restructuring of the corresponding social mechanisms because the traditional mechanisms are no longer suitable for maintaining the equilibrium of the new type.

It is this that happens during a demographic revolution. The starting momentum for this revolution is provided by the transition from an agrarian to an industrial economy, which commences during the growth stage of capitalism and becomes particularly accelerated by the industrial revolution. The sharp change in the relationship between the power of man and that of nature radically alters the conditions of human existence. One of the most important changes--much more effective than formerly--is control over mortality rate, the rapid and drastic reduction in that rate. This has irreversibly disrupted the demographic equilibrium that has existed over a prolonged period of time, and it requires placing that equilibrium on a new basis.

The demographic revolution is primarily a change in the type of the demographic equilibrium: the equilibrium between a high birth rate and a high death rate is giving way to an equilibrium between a low birth rate and a low death rate. But then the old demographic relations and the associated institutions, cultural norms, value orientations "geared" to it, now are no longer suitable and have to give way to others capable of directing the demographic behavior of humans under the new conditions--otherwise that behavior itself would not change.

Such a social restructuring is indeed taking place, and it represents an entire new era in the life of every nation. In Russia it started in the second half of the last century and was an inseparable part of all the vast revolutionary changes which had ripened and commenced in post-reform Russia and were even then clearly reflected in literature and art. Recall, for example, an episode from "Anna Karenina": Dolly Oblonskaya's trip to

Vronskiy's estate to visit Anna. On the way Dolly reflects all the time on the meaning of motherhood, its problems, and whether a woman should devote her entire life to bearing and weaning children, and cannot arrive at answers to these questions. Later, during a conversation with Anna, she perceives that Anna has the answers, listens to her arguments and, Tolstoy says, they are the same arguments which she herself had thought of. Even so, she listens to them without comprehending them. "She suddenly sensed what a distance has arisen between herself and Anna, that there exist between them questions on which they will never agree."

This scene is a superb illustration of the turnabout in social awareness, in human mentality, which had commenced as soon as in Russia there appeared the first signs of the new demographic relations, of the new type of human intercourse relating to aspects of marriage, the family, child-bearing, protecting the health of children and preserving human life in general. This turnabout changed human lives extensively, had to be conceptualized and engendered disputes. The demographic revolution is noiseless and bloodless, but it still is a revolution--a radical break in the nature of millennia-long relations, the transition to something new and unexplored. At various stages of that transition--differently during each stage--elements of life, existence, ideology and culture that are naturally linked to both old and new demographic relations co-exist, get intertwined, influence each other and sometimes even are in sharp conflict. Gradually, the former become displaced by the latter, which may occur more or less rapidly, consistently or in spurts and, this being particularly important, not concurrently within different strata of society.

In the Russia of last century the transition to the new relations began precisely in the strata to which Anna Karenina belonged--the elite of the contemporary Russian society, the urban intelligentsia. It is precisely in these strata that the mortality rate first began to decrease, and it is within them too that the birth rate first began to be deliberately reduced. Little by little, the new relations, the new family morality began to penetrate other strata of the population as well. But while they slowly spread in the cities, they had remained almost completely unfamiliar to the peasantry constituting the majority of the country's population: the social-economic backwardness of tsarist Russia also accounted for its demographic backwardness.

Following the Great October Socialist Revolution the change from an agrarian to an industrialized country took place within an unprecedentedly short period of time, and the economic and social structure of the Soviet society changed as well: a cultural revolution took place. All this provided the premises for the country's population to progress rapidly through the basic stages of the demographic revolution, which had as early as in the 1950s entered upon its concluding stage in the USSR.

But this refers to the country's population as a whole. In certain rayons, some even fairly large, this concluding stage still has not arrived. The historical past of the various nations in our country has not been uniform. When during the first post-Revolutionary years the demographic revolution spread and accelerated, the peoples of the USSR existed in varying stages of economic and cultural development. The revolution could not develop at the same rate and reach its concluding stage simultaneously everywhere in this

country. And to this day the situation in different regions of the country differs markedly.

This hardly affects the mortality rate. Although some general differences in mortality rates, particularly infant mortality rates, still persist, it can be justifiably claimed that uncontrolled mortality of the traditional type, associated with the absence of public health services, with the poverty and ignorance of the population and its passivity in face of death, has long since ceased to exist in any stratum of our population, anywhere in this country.

But as for the birth rate the situation is different. In certain regions of the USSR, e.g. in the republics of Central Asia, the birth rate remains extremely high. The tradition of large families is particularly stable among the rural population in these republics and is apparently linked to the known persistence of certain traditional forms of human life and existence there. But these traditions can in no way be considered a particular national feature of Central Asian or any other peoples. However high the present-day birth rate in, say, Tajikistan (37 births per 1,000 capita in 1980) may be, it still is much lower than the birth rate prevailing 80 years ago in European Russia (48 births per 1,000 capita) [as published].

The economic niveau of all regions of our country is becoming equalized. Industry is growing in the Central Asian republics and other regions with high birth rates, in which urban living standards are being adopted and the general educational level is rapidly rising. This inevitably entails major changes in the awareness and mode of life of people and, along with them, a mass transition to deliberate curtailment of the number of children in a family and hence also a rapid decline in birth rate.

Properly speaking, we are actually witnessing this decline, as one after another, the Southern republics are passing over into the group of republics with low birth rates (the first was Armenia, which is now being followed by Kazakhstan and Azerbaijan).

However important the vast changes in birth and death rates may be in themselves, their significance is even greater in relation to changes in demographic relations. The pattern of the entire process of the renewal of generations is changing markedly. There is every foundation for speaking of its marked progressive transformation, of an improvement in its quality (let us stress here that this concerns not an improvement in the "quality of the population," such as is often written about, but an improvement in the quality of the process of its reproduction).

The stability and manipulability of population reproduction have increased sharply. Previously, mortality rate had been the principal regulator of population numbers, being relatively independent of human will. Once it became possible for society in the course of the demographic revolution to achieve sufficiently effective control over mortality rate, the birth rate became the principal regulator of the demographic process. In this connection, of course, the role of deliberately adopted decisions has grown extraordinarily while the role of decisions independent of human will as well as of random factors extraneous to the population (epidemics, natural disasters, poor harvests, etc.) has correspondingly declined.

Yet another indicator of improvement in the quality of the demographic process is the sharp rise in its economicity. Toward the end of the last century in Russia, to replace the mother population by the daughter population, every 100 females had to give birth to 198 daughters (that is, altogether about 410 children). By the early 1960s the same result was achieved by the birth of 108 daughters (out of approximately 220 children of both sexes). This fall in the "price" of simple reproduction reflects the decrease in demographic losses.

The "economicity" of population reproduction has increased--and irreversible changes have taken place in the age composition of the population. They are usually termed "population aging" and often regarded as something extremely undesirable. This is not quite true. In fact, given the uncontrolled high mortality rates of the previous eras and the present-day low mortality rate, the same result--say, simple reproduction of the population--is achieved with differing age structures and in the latter case the proportion of elderly people will be much greater and that of children much lower than in the former. This is evident from the so-called age pyramids. Mankind has lived for millennia with a broad-based age pyramid and all the social institutions, traditions and so forth were adapted to that pyramid. Now adaptation to a narrow-based pyramid is needed and this is undoubtedly giving birth to various economic and social problems. But these problems are the price that has to be paid for demographic and hence also social gain. So that one person might reach the upper part of the pyramid--live to, say, age of 80 years--about 11 to 14 other persons had to die at the end of the last century. By contrast, early in the 1960s nearly every third person has a chance for living that long. This is the real meaning of the narrowing of the base of the age pyramid.

Thus, vast changes never before seen in this country have taken place in the USSR within a historically very brief period. The type of demographic equilibrium and the social mechanisms supporting it have changed. The historical type itself of population reproduction has changed: the previous type, often termed traditional or extensive, has been superseded by the new contemporary type (synonyms: rational, intensive). It is therein that the principal outcome of the demographic revolution consists.

The influence of that revolution is positive both to society as a whole and to every individual. It has made possible a much more rational "construction" of one's biography.

Prior to the demographic revolution man's life cycle had nearly coincided in time with the demographic cycle. People got married and began to have children fairly early, remained philoprogenitive late and did not live much longer afterward. Birth and death were frequent companions in people's lives. Late last century in the European part of Russia the average age of a woman at her first marriage was 21. By the 1950s more than one-fourth of women married at age 21 were at least once widowed.

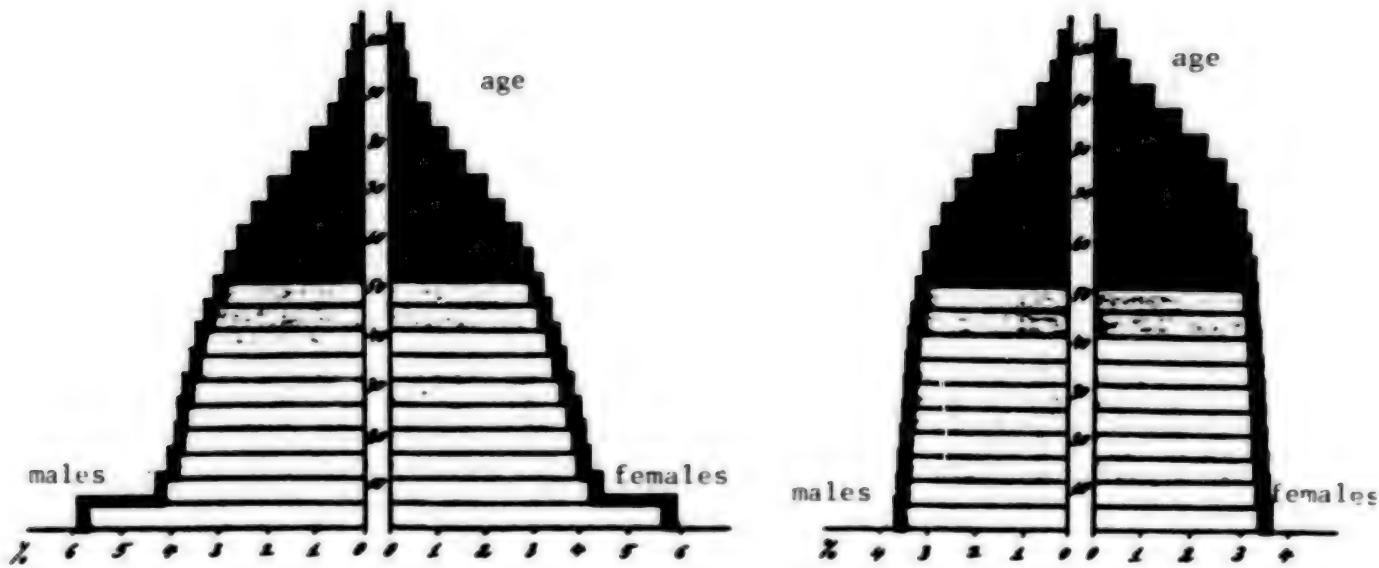


Diagram: It is possible to imagine a situation in which the birth rate equals the death rate and zero population growth persists year after year, generation after generation. Demographers analyze the model of such a "stationary" population in order to understand how the mortality level affects the ratio among people of differing age. Given the mortality rate existing in European Russia in 1896-1897, the population total would remain stable for the age ratios shown in the left-hand pyramid, where children up to 15 years old account for 27.6 percent and persons upward of 60 years old, 14.2 percent. For the mortality rate recorded for the USSR during the years 1958-1959, the same population stability could be achieved for a different age ratio: children up to 15 years old account for 20.3 percent and the elderly 20.3 percent. The base of the contemporary age pyramid is narrower.

Soon after marriage the first children were born and, unless marriage ceased with the death of one of the spouses, a woman remained fertile for more than 20 years and during that period gave birth to 9 or 10 children on the average. In other words, nearly the entire life of a married woman was punctuated by child-bearing, childbirths and the nursing and weaning of children. Many of the children died early, so that even a woman with many children could become childless toward the end of her life. Often it was the parents who died prematurely, orphaning their children.

Following the demographic revolution all this changed sharply. In the early 1960s the period from marriage till the birth of the last child decreased to 9 years and, although a much smaller number of children is now being born, nearly all of them survive to adulthood. By then, as a rule, their parents still are alive. Nowadays a woman can painlessly reduce--and very considerably at that--the period in her life relating to childbirth itself. Not only the number of children is controlled but also the time they appear in the world. The woman is enabled for the first time to plan her life, to utilize the thus gained extra time for herself, for work, for refining her personality, and pay much more attention to each individual child.

Well then, does the demographic revolution yield only advantages to society, lead to a "demographic paradise"? Unfortunately, no. This revolution does not the i over the long era of the traditional type of population reproduction and eliminate the problems and contradictions inherent in that era. But, on resolving these old problems and contradictions, progress engenders other new ones. For broadening society's power over its demographic existence may enhance its "demographic freedom" (which is a vast social gain) but at the same time it represents a substantial danger to the normal generational renewal.

Economic and scientific-technical progress has provided man with a mighty arsenal of weapons to control famine and disease, but it also has generated mighty death-dealing forces. Never before has society disposed of such possibilities for protecting the health and life of people against natural disaster and making environment more salubrious. But also never before has human activity created the danger of a global ecological catastrophe, and there has never before been a neutron bomb or chemical or bacteriological weapons. And although control over the mortality rate is indeed effective and continues to increase in effectiveness, the social and economic conditions on the world scale do not yet warrant regarding the power of death as reined in forever.

The birth rate too is distant from any demographic idyll. Of course, the family, the woman, now benefit from unprecedented freedom of choice, and the birth of every child has become the result of a free and conscious decision by parents. But the dependence of the entire course of the demographic process on a multiplicity of individually taken decisions has engendered new problems. The interests of the society and those of the family as regards the number of children in a family may and sometimes indeed do diverge. At any rate, currently the mean number of births within a majority of the population of the USSR is not sufficient even for the mere reproduction of the population.

This means that no "demographic paradise" is coming. A new turn in development engenders a new spate of problems which have to be continually solved both by

us and by our grandchildren. But this in no way discounts the tremendous advantages of the new type of population reproduction. It is simply that this new type should not be overidealized.

The Soviet society currently faces two kinds of problems relating to the demographic revolution. On the one hand, expediting the course of this revolution among the already few population groups which have not entered upon its concluding stage should be promoted. On the other hand, the new type of population reproduction, which has by now basically taken firm hold on the greater part of the territory of this country, should be strengthened and perfected and acceptable forms of resolving the attendant contradictions should be explored and supported. Both aspects are tasks of demographic policy. But that is already another topic, deserving a separate discussion.

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GENERAL

EXPERT CALLS FOR BETTER PLANNING OF PUBLIC HEALTH OUTLAYS

Moscow FINANSY SSSR in Russian No 11, Nov 83 pp 35-38

[Article by T. V. Golikova, senior scientific associate of NIFI: "Improving Planning of Administrative Expenditures of Public Health Institutions"]

[Text] Contemporary public health requires the operation of a large network of medical institutions. Every year the state spends significant amounts of capital on it, primarily through the budget. In 1981 15.1 billion rubles from the USSR State Budget was spent for maintaining and developing public health institutions. In accordance with the list of types of expenditures ratified by decree of the USSR Council of Ministers for all budget institutions, administrative expenditures are not singled out in estimates. Instead they are included in sub-heading No 3 of the budget classification "Office and Administrative Expenditures."

Expenditures for office and administrative needs make up 10-20 percent of the total expenditures. An increase in appropriations for these purposes is observed every year, for individual institutions as well as for oblasts, krays, republics, and the ministry as a whole. For example, in the 10th Five-Year Plan expenditures for hospitals and polyclinics in cities and worker communities to be found in RSFSR local budgets increased 1.5 times.

The composition of expenditures designated in sub-heading No 3 and procedures for its application are established by the USSR Ministry of Finance in the budget classification of income and expenditures. Many types of expenditures included in this sub-heading are of insignificant proportions: communications (0.8-2.5 percent) and payments for apartments and municipal services (1.5 percent); office expenditures are stable or dropping slightly in volume (0.9 percent). The bulk of expenditures is administrative expenditures (more than 75 percent) and expenditures for maintenance and hiring of motor vehicle transport (10-20 percent). The increase in appropriations is caused primarily by the increase in the last two types of expenditures. Expenditures for maintenance and hiring of motor vehicle transport rose in connection with increased tariffs for using ambulances because of the introduction of new prices for gas and the formation of motor vehicle combines to serve medical institutions on a contract basis. The rise in administrative expenditures is linked to opening new buildings at large general hospitals with improved sanitary-hygienic and living conditions, to the consolidation of central rayon hospitals and continued supply of new medical equipment to public health institutions, to deployment of hospital beds to new additions in existing hospitals, to the increase in existing prices and tariffs for electricity, heating, and gas, and to the

organization of associations for operating engineering structures, buildings, and equipment for medical institutions.

The creation of technical operations associations (ETO's) whose staffs have positions for mechanics, sanitary engineers, electricians, and other service personnel made it possible to concentrate labor and technical means and to conduct preventative repair and maintenance of sewer systems, water supply lines, buildings, equipment, and inventory through contracts concluded with each medical institution. The contract form of servicing leads to a stable total of administrative expenditures. Appropriations fluctuate because of changes in network indicators and in prices and tariffs for certain types of expenditures.

The largest shares of administrative expenditures are for expenditures for heating (11-25 percent), laundering of linen (20-22 percent), lighting (10 percent), water and sewerage (5 percent), and for keeping buildings, court-yards, and streets clean (5 percent). The technical operations association's expenditures total from 25-40 percent of all expenditures for medical institutions.

Under contemporary conditions expenditures for administrative needs are planned in estimates for the individual institution and cumulatively for the city, rayon, oblast, kray, republic, and for the ministry (department). The primary method of planning is the normative one using network-operations indicators and expenditure norms. It is simple to apply and sufficiently precise. Since norms can be differentiated according to climatic and local conditions, this method makes it possible to create sufficiently equal conditions for budget institution activities.

In cumulative planning combined norms which were introduced to eliminate existing differences in the level of expenditures for individual rayons have been widely used. Nonetheless, in practice they are established on the basis of report data for the preceding plan period. For some types of administrative expenditures the planning method "from the level achieved" is applied; it was widely used in budget planning in the 1920's. In this case appropriations are determined as an adjusted indicator of the actual amount of expenditures for the previous period.

In this way, the exactness of determining proposed expenditures with cumulative planning depends on the accuracy of estimating the average expenditure and the production indicators; for individual estimates it depends on the validity of norms and the choice of the norm-setting unit.

Rules for formulating and implementing the USSR State Budget specify that "Ministries (departments) of the USSR and Union and autonomous republics, administrations, and ispolkom departments of local Soviets of People's Deputies . . . develop and convey to subordinate institutions: indicators of the activities of these institutions for the previous year and differentiated financial and physical norms of expenditures and other indicators which result from existing legislation and are needed for accurate calculation of expenditures called for in projecting estimated expenditures."

The USSR Ministry of Health has worked out norms for nutrition and medicine, and for acquisition of "soft inventory" only. There are no mandatory differentiated norms of expenditures for administrative needs. Attempts to work out scientifically substantiated norms on the basis of sub-heading No 3 have failed. Difficulties occurred in selecting norm-setting units (cubic area, number of beds, area) and in the wide diversity of the kinds of expenditures associated in sub-heading No 3. Studying financial reports of hospitals with the same number of beds has shown that administrative expenditures for them fluctuate sharply because of differences in the heating system, the length of the heating season, the procedures for laundering linen, and for other reasons.

For individual medical institutions the amount of administrative expenditures for the plan period is set according to its basic types. So, when calculating impending expenditures for heat and hot water supply, material norms of fuel expenditure in units of standard fuel per cubic meter of heated space based on an external measurement are used. They are worked out by republic Gosplans and are differentiated in relation to specific features of the heating of certain types of buildings. Standard fuel is used up according to a set coefficient for those types of fuel which are being used in the given area. Transport conditions are considered separately as are expenditures for sawing and chopping wood, according to prices ratified by ispolkoms of local Councils of People's Deputies. In this way the type of fuel, its price, the length of the heating season, and the external cubic capacity of the area are taken into account when figuring expenditures for heating. However, they have not been re-examined for a long time and norms are worked out on the basis of old boiler equipment. Also there are no norms for expenditure of fuel for heating basement areas. Moreover, norms worked out by the Ukrainian SSR Gosplan are the same for all budget institutions (hospitals, schools, gardens, and so forth) with differentiation by regions of the republic. But fuel requirements for heating hospitals and schools are different, since hospitals operate around the clock while schools do not. In the Kirghiz SSR tables of norms of fuel expenditure in particular administrative-territorial units are given with adjustment coefficients which take into account the specialization of activity of the budget institution. Tables of norms for expenditure of fuel used in different republics must be re-examined with regard to the shortcomings mentioned above.

For determining appropriations for building maintenance, a norm is used which is set by the USSR Ministry of Finance of the building measured externally. The norm is 7.8 kopecks per cubic meter. However the norm does not take into account differences in designs of buildings and structures, the degree of their deterioration, and the type of building material used to erect them, and does not reflect the level of their technical equipment. The choice of the norm-setting unit also arouses doubt. Internal and external structures of buildings are repaired, and the ratios of the total volumes of buildings by external and internal measurements vary. Buildings with many rooms also require large amounts of capital for repair work. The amount of expenditures for building maintenance depends on the deterioration of the building and the type of building material which was used to build it. It seems advisable to combine expenditures for building maintenance with capital repair, since

in practice, it is difficult to differentiate these types of repair and to plan appropriations for them in a percentage of the balance cost of the building according to sub-heading No 16, taking into account the degree of deterioration of the buildings and the type of building material.

Expenditures for maintenance and capital repair of equipment and inventory (including "soft inventory") are envisaged in an amount up to four percent of their balance cost. Appropriations for replenishment of equipment and inventory resulting from deterioration and withdrawal for the existing network are planned according to sub-heading No 12 of the budget classification. These expenditures should be combined and figured according to sub-heading No 12 as a percentage of the balance cost of the individual project. The percentage must be commensurate with the degree of deterioration of equipment and inventory and must be periodically re-examined.

In accordance with methodological instructions, expenditures for lighting are figured according to the actual average expenditure calculated per square meter of area. The amount of direct expenditures for lighting depends on the number of lighting devices, capacity and times of their work, and existing tariffs for electricity. It would be more advisable to compute the necessary number of lighting points and their capacity and periods of operation during the year for existing sites by using existing material norms for lighting which are used in planning for medical institutions. In this case the financial norm will represent expenditures per one light point of a particular capacity per year. The proposed method is proper, inasmuch as the norm-setting unit (area) being recommended in methodological instructions does not take the degree of lighting of the area and its heterogeneity into account.

Other types of administrative expenditures (keeping areas, courtyards, and streets clean, expenditures for disinfecting and so forth) are combined into other types. Appropriations for them, as for expenditures for laundering linen, are determined in absolute sums with consideration of actual expenditures for previous years. It would be more proper to work out norms of the need for laundering linen calculated per unit of the network and norms for expenditures for sanitary-hygienic service to collectives, and for water use and other types of administrative expenditures based on an analysis of past expenditures. Thus, expenditures on administrative needs for particular estimates should be determined individually based on norms of expenditures.

Medical institutions recently have concluded contracts for various kinds of services under administrative expenditures. In this case expenditures are envisioned in estimates in accordance with the contracts concluded. So, in a contract for water supply and sewerage water requirements are established at 433,333 cubic meters a year. The cost of water and sewerage is determined by multiplying water needs by the price per cubic meter:

$$433,333 \text{ m}^3 \times 0.06 \text{ kop/m}^3 = 26,000 \text{ rubles.}$$

The validity of the necessary volume of heat, water, and electricity as established in contracts should be more closely checked, and gauges and water meters should be installed when possible.

In conditions of combined budget planning cumulative administrative expenditures are combined with other types of expenditures and are planned on the average expenditure per bed, per medical position, per child, and per institution. The average expenditure for a plan unit reflects actual office and administrative expenditures. This leads to a situation where even in oblasts with the same climatic conditions the average expenditure fluctuates sharply. For example, for hospitals in cities and in worker communities to be found in local budget of the BSSR, appropriations in 1981 for administrative and other expenditures calculated per bed fluctuated from 292 rubles in Brest Oblast to 351 rubles in Grodno Oblast, but in Minsk Oblast they totaled 617 rubles. In Union republics office and administrative expenditures are combined with expenditures for business trips and official travel and for study and other expenditures (sub-headings Nos 4,5, and 18). Every year overfulfillment of plan designations for sub-headings Nos 3 and 18 has an effect on average expenditure and it increases average expenditure for the plan period also. Consequently it would be more useful for Union republics to envision expenditures for sub-heading No 3 separately, without combining them with sub-headings Nos 4,5, and 18. In reports for Union republics expenditures for these sub-headings are shown separately. This makes it possible to calculate average expenditure per bed, medical position, institution, and so forth for all sections of the budget classification.

Creation of an aggregate average expenditure by totaling individual norms is complicated by the lack of norms of many types of expenditures and by the absence of a significant effect of local conditions of activity on institutions for formulating the most important administrative expenditures. It does not seem to be possible to establish it as a fixed amount, since administrative expenditures are continually increasing. Consequently, until individual norms for all types of administrative expenditures are worked out, every year it is necessary to figure out average expenditure for sub-heading No 3 based on analyzing the dynamics of expenditures and taking into account factors which influence its growth.

The planning unit of norm-setting (bed, medical position, and so forth) used at the present time in combined planning is not directly related to the economic content of expenditures, i.e., the amount of administrative expenditures does not directly depend on the number of network indicators. Most administrative expenditures depend more on dimensions of buildings than on the number of beds and children. The hypothesis expressed is confirmed by report data. On the basis of factual data cubic area of buildings and average annual number of beds for Tuberculosis Sanitarium No 6 in Moscow, average expenditure was determined for sub-heading No 3 calculated per bed and per cubic meter of buildings measured externally for 1980 and 1981 (see table next page).

As is apparent from the table, by 1981 the number of beds in the hospital was reduced and expenditures for office and administrative needs were slightly decreased. However, calculated per bed, the expenditure for sub-heading No 3 increased by nine percent, while calculated per cubic area it was reduced by 3.1 percent. Reducing administrative expenditures led to reduced average expenditure per cubic area. This proves that a direct dependence exists between expenditures for office and administrative needs and cubic area of buildings. Indicators of production activity have an impact on administrative expenditures, but in an indirect way -- through the deminisions of the buildings. Plane area or cubic area of buildings may be used as the object of norm-setting.

	1980	1981	1981 as % of 1980
Office and Administrative Expenditures, rubles	510,000	494,500	96.96
Average Annual Number of Beds	900	800	88.88
Outside cubic measurement of the buildings M ³	202,700	202,700	100.00
Average Expenditure of Office and Administrative Expenditures per bed, rubles	566.67	618.18	109.08
Average Expenditure of Office and Administrative Expenditure per cubic meter, rubles	2.52	2.44	96.94

Many economists propose setting norms of administrative expenditures per square meter of area, justifying it by saying that expenditures for heating and keeping spaces clean depend directly on the plane area of the space. It would be more proper to plan appropriations for administrative purposes per cubic area of buildings, since a large proportion of types of administrative expenditures depend precisely on their volume: requirements for capital for heating, for lighting to a significant degree, and keeping buildings clean.

Expenditures for laundering linen, for water and sewerage, and sanitary-hygienic services to collectives are directly related to the number of beds and the ability to move patients through in a certain period of time. But there is an indirect link between these expenditures and cubic area of buildings. The larger the cubic area, the larger the floor area of institutions, and consequently, the more beds there will be, which requires additional expenditures for laundering linen, for water, sewerage, and sanitary-hygienic processing. Moreover, obtaining data on the volume of buildings is simpler than formulating information on the plane area of spaces. By taking into account this dependence and the fact that other types of administrative expenditures are of insignificant volume, it may be proposed to set the norms for administrative expenditures per cubic area of buildings measured externally for all medical institutions. Using cubic area as the norm-setting unit will help make combined and individual planning uniform, since cubic area is used in reports of individual estimates for many types of expenditures.

Setting norms for total administrative expenditures according to sub-heading No 3 calculated per cubic meter of building volume presupposes isolating that part of expenditures which does not depend on dimensions. To this end it is necessary to account for expenditures in sub-heading No 3 by the following types: office, typographical, mailing, telegraph and telephone, and acquisition of reference, official, and periodical literature; expenditures for payment for free apartments and municipal services; for maintenance and hiring of transport; heating; laundering linen and fixing "soft inventory"; lighting; water, sewerage, and sanitation; keeping buildings, courtyards, and streets

clean; and sanitary-hygienic services for collectives. At the present time the number of types of expenditures for individual institutions fluctuates sharply. For example, records for 13 types of expenditures are kept at Tuberculosis Sanitarium No 6 in Moscow; the Central Rayon Hospital Khimok records 29 sub-headings, and the Children's Clinical Hospital No 9 in Moscow accounts for 23 types. The proposed method of reporting expenditures will make it possible in like manner to reflect individual types of expenditures in reporting for both individual estimates and combined ones. Some proposed types have already been introduced in reports on fulfillment of expenditure estimates for organs of state administration, courts, and the office of the public prosecutor (form No 2-1).

There is reported data on cubic area of buildings only in individual estimates. In projecting the budget, indicators of cubic area of buildings are represented in Sections 1, 2, 3, 4, 11, and 12 of the budget classification in the form entitled "Network, Staffs, and Contingents." Therefore, when public health institutions report on fulfillment of estimates and finance agencies report on fulfillment of the budget, indicators of cubic area of buildings must be introduced. Using average norms for cubic area in combined planning of administrative expenditures is rational from the point of view that the indicator "cubic area" is more stable than the annual average number of beds. In this case, only prices and tariffs have an impact on increasing administrative expenditures.

The proposals suggested would make it possible to raise the quality of planning expenditures for administrative needs, increase the operational efficiency of their calculation, and use appropriations allocated for these purposes more rationally.

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